SUPPLEMENT

TO THE

FARMER'S MAGAZINE:

WEDNESDAY, 21st DECEMBER, 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Thrashing Machines.

SIR, LETTER II.

IN my last, p. 128, I attempted to elucidate the history of that valuable implement the *thrashing machine*, and made a few remarks on the improvements suggested thereupon by your correspondent, A. G. (vol. III. p. 428.) which I considered as of small importance either to farmers or mechanics. Allow me now to finish these remarks, and to shew, that thrashing machines of a small size, such as are recommended by A. G. are a real and positive loss to the farmer, and that the flail is preferable to these weak, and comparatively powerless implements.

Your correspondent, speaking of his water machines, says, that 'where the situation of the ground would admit, 'I would propose an inner wheel of eight feet diameter, 'mounted with cast iron segments containing about 200 teeth, 'and that this should turn a pinion attached to the end of the 'skutch containing about 7 or 8 teeth,' (which by the bye is too small): and adds, that 'the first motion communicated 'by water, or a horse, will require to be slow,' but does not explain the degree of slowness necessary; for want of which I cannot discern any utility in the observation. It is clear, that on the velocity of the first moving power, the whole effect of machines, individually considered, must depend, and that any errors committed in the original construction, can hardly

afterwards be completely rectified. Great mistakes have arisen in erecting machines, from not knowing, or not attending to the velocity which the moving power ought to have, so as the greatest effect might be produced. In an overshot wheel, the greater the velocity of the wheel, the less will be the effect of the moving power, as water only acts with a relative force; for heavy bodies falling only 16 feet in the first second of time, it is evident, that if the circumference of the wheel was moving at that rate, the water would have no effect upon it. On the contrary, when the wheel is standing and the buckets filled, the water then acts with its whole weight; so of course there must be a certain velocity of the wheel, where the relative weight of the water will produce the greatest effect on the machine, or do the greatest quantity of work in a given space of time. If your correspondent had pointed out what this velocity ought to be for wheels of different diameters, he would have performed a most essential service; but by giving dimensions of wheels and pinions, without mentioning the just velocity, or even any velocity of the moving power, no benefit can be derived from his several calculations.

What I have said respecting water machines is equally applicable to those wrought by horses. There is a certain rate per hour at which horses ought to move, beyond which they ought not to be driven; and from this rate, all the other movements fall to be regulated. Here I may notice what your correspondent says concerning long levers. He says, that *if the lever is increased one-third in length, one horse will perform nearly the same work as two;* but I am afraid that if any of your readers build their faith upon this statement, they will find themselves miserably deceived. In very small circles a horse draws within the tangent to the circle, and there is a loss of power in the direction of the draught, and an increased pressure upon the axis; but in such circles as are commonly used for thrashing machines, the deviation of the draught line from the tangent is so very small, that the loss of power is trifling. This is not a matter of opinion, but admits of mathematical demonstration; as also the consequences produced by increasing the length of the lever, it being a well known principle, that whatever is gained in power is lost in time. From these things suffer me to remark, that the observations of your correspondent have not been duly considered by him; for instead of conveying instruction, they really tend to mislead.

I am also inclined to think that there has been some mistake in what he relates concerning the power of a fly on the end of the

the skutch, and believe that whenever the experiment is accurately repeated, the result will be found different from what is stated.

I shall now proceed to the last point in view, and shew, that thrashing machines of small size are a real and positive loss to the farmer; and that the flail is preferable to these weak, and comparatively powerless implements.

Here I may remark, that your correspondent appears a warm advocate for small machines, but neglects to describe a single benefit which can be derived from such erections. Thrashing machines are undoubtedly beneficial to the farmer, 'both as 'a saving of time, and manual labour, and also on account of 'the superior manner in which they detach the whole grain 'from the straw:' but whether these objects are to be gained by employing machines wrought by one horse or two horses is not to be learned from the paper under consideration. To me it appears, that no saving of time or labour can take place from such erections; and it may be safely questioned, whether grain can be separated from the straw in a superior manner by the strokes which they are capable of giving.

Whatever be the size of the machine employed, it is obvious, that, at all events, one man is required to feed it, and that another, or at least a boy, is required to drive the horse, or horses that are yoked to the implement. In these instances the like expence is incurred, whether one horse or six horses are employed, which makes a difference in favour of the large machine of at least twelve shillings and sixpence each day it is employed; seeing that an equal quantity of corn will be thrashed by it in one day as is done by the other in six days, and probably the separation will take place in a more complete manner: To this must be added the saving gained below stairs in the wages of those employed to remove the straw and riddle the grain; for you must have one man or woman for each of these departments in the smallest machine, and two are quite sufficient for the largest that is used. A like difference perhaps arises in the wages of those employed to open out the corn, and hand it to the feeder; all which, when added together, will amount to more than twenty shillings upon every fifty bolls of grain thrashed in favour of the large machine, even admitting that the work is equally well done in both cases.

I am aware, that though the above statement sufficiently proves the superiority of large machines over small ones, yet still it does not make out that the latter are a loss to the far-

mer, or that the flail is the preferable implement. This subject shall therefore now receive my attention.

Your correspondent says, that 'in Leicestershire, where 'the power of a horse has been added to these small machines, 'they will thrash about a quarter of corn in two hours, and 'that they are there found to answer for moderately sized 'farms.' The quantity here given does not exceed fourteen pecks per hour of all grains, but taking it at a boll, which I believe is very near the truth, I have a foundation on which the following calculations may be built.

I have already shewn, that twenty shillings on every fifty bolls of grain thrashed is lost to the farmer who uses a small machine, in the single article of wages; and shall now state the relative expence of thrashing by a small machine and by the flail.

In the case of the Machine.

Value of horse labour for one day - -		£. 0	4 0
A boy to drive -		0	1 0
A man to feed the machine		0	1 6
A woman to riddle the grain		0	0 7
A woman to open out the sheaves - -		0	0 7
Prime cost of the machine	£. 35 0 0		
Interest upon this sum at ten *per cent.*	£. 3 10 0		
Tear and wear per annum	2 10 0		
	£. 6 0 0		
Suppose that the farm upon which the machine is wrought shall produce 300 bolls of grain per annum, which, at 8 bolls per day, requires thirty-two days and an half to thrash it; *inde.* the interest of capital, and tear and wear amounts per day to - -		£. 0	3 8
		£. 0	11 4

Which

Which, upon the supposition that eight bolls are thrashed per day, as stated by your correspondent, amounts to one shilling and fivepence per boll. Now, as corn can be thrashed by the flail at less than one shilling per boll on an average, the loss attendant upon small machines does not require further demonstration.

I may here add, that from an attentive examination of many thrashing instruments of different powers, I am satisfied that a boll per hour for every horse employed, is a fair average calculation of the quantity of grain thrashed by these machines. No doubt but that, in particular seasons, with short straw and fine grain, a greater quantity will be beat out, but still, as a general principle, the above may be held as nearly equal to the ordinary produce. I have seen fifteen bolls thrashed in *one* hour with six horses, but always found a great deduction must be made when a regular journey is taken, independent of the waste of time which unavoidably happens. In some seasons, also, the straw is so long, and the grain so unproductive, that few people, who are in the habit of managing these machines, will call in question the propriety of assuming a boll per hour for every horse employed as a fair result of thrashing machine labour; I am rather afraid, that some will consider it as exaggerated.

I have hitherto argued the question, as if small machines were capable of separating the grain from the straw in a sufficient way. As this however is a matter of dispute, and concerning which I am not altogether satisfied, allow me to state my sentiments in a cursory way, and to express a wish that some of your correspondents, practically concerned in the working of such machines, would correct me when I am wrong, and elucidate the subject with more perspicuity.

In my last letter it was stated, that a velocity not less than two thousand feet per minute of the circumference of the drum, or cylinder, was required to ensure perfect thrashing, and that the best machines even exceeded that pitch considerably: Now it strikes me, that a small machine is uncapable of sustaining such velocity, at least those I have inspected were neither wrought at that rate, nor were they calculated for it in any single point. To give velocity to a machine slenderly constructed is almost physically impracticable; at least, if given, the machine is exposed to utter destruction, a circumstance deserving much attention in the construction of every machine, whatever be its size.

According to the ideas which occur to me upon the subject, two things deserve attention in the construction of small machines, in order to render them, if not profitable implements,

at least capable of threshing sufficiently, though at an increased expence. These are either to shorten the cylinder in a proportionable degree to the extent of the impelling power, or to lessen its diameter, which will allow every other part of the fabric to be in like manner diminished. This last mode has hitherto been resorted to in the construction of small machines, though I am not sure but that the principle, upon which it is founded, is erroneous; at any rate, it can only answer where the unthrashed grain is thinly passed through the feeding rollers, as the closeness of the beaters would choke the cylinder, and impede the operations of the machine. The other plan I think better of, *viz.* to reduce the length of the cylinder exactly to the force employed to work the machine, in which way as much velocity may be safely used as is practicable with machines of the largest size, provided that the other parts of the work are constructed in a sufficient manner. According to this plan, the cylinder ought to be of the usual diameter, but not to exceed 15 inches in length for a one horse power, and proportionally more, as the draught is augmented. With such a cylinder you may feed as thick in as is commonly practised, and you make up in thickness of feeding for the increased breadth occupied upon the board when the diameter is only reduced. Such a cylinder would stand more fatigue, and be in less danger of breaking, than a long slender one. To be sure it would be an aukward business to see it at work; but be this as it may, it appears to me that such would be the cheapest in the first instance, and the durablest of all small machines; though in point of profit, I believe they are all in one predicament.

I ought to have noticed a circumstance which renders the flail superior to small machines, and that is, that where hand labour is used for thrashing, an inconsiderable part of the sheaf is thrashed, whereas, in passing through a machine, every inch of the straw receives the same beating as is given to the ear, where the grain has its residence. This, especially when strong rank wheat comes to be thrashed, is a matter of great importance. The thrashing of the whole straw certainly occasions an extra quantity of produce, but this can only be profitably gained by using powerful implements; for where small ones are used, the increased produce is eaten up by the increased labour. Upon a farm of small size, where only one or two ploughs are kept, the occupier often thrashes a good deal of the grain himself, at least he has it in his power to examine every truss of the straw; none of which things can possibly happen where the concern is extensive. Upon small farms, such as are of the size condescended upon by your correspondent

dent, machines cannot be used with advantage, and seldom will they make a greater return than is gained from the flail under the circumstances above alluded to.

Perhaps upon every farm where six or more horses are regularly employed in field labour, machines may be advantageously used. The quantity of grain raised in such situations becomes an object of importance, sufficient to induce the occupier to erect a machine of considerable powers. In fact, the difference of expence lies all in the original outlay, which in few cases can exceed forty or fifty pounds, and is soon reimbursed by the after savings. I believe that every person, really conversant with thrashing machine work, entertains ideas of a similar kind; for small machines seem to be sought after only in those districts where machinery has been recently introduced, and are soon given up in favour of more powerful implements: even Cotterel's gigs got footing in East Lothian at an early stage, though it is not consistent with my knowledge that one of them now remains.

The most useful and thrifty machines are those that require a complete set of hands to work them, where none are idle, but all properly occupied, and so arranged as to carry on the work regularly. The feeder being the most expensive of the whole, it is a primary object to have the cylinder of sufficient length to match the compass of his arms; in general cases, four feet and an half is the size adopted, few men being capable of spreading the unthrashed corn over a board of greater bounds, especially if the straw is short. The other hands required are two women to riddle the grain, and take charge of the fanners; two boys to open the sheaves and hand them to the feeder; two men to remove the straw, and one to drive the horses: These I call a complete set of hands. If the work is such as to require fewer, a loss is sustained in some shape or other, and seldom is a greater number necessary to manage the several departments.

I must confess I felt surprise at your correspondent speaking so much concerning hand machines, as every attempt of that nature has altogether failed. One of my friends in England believed that he had hit upon a proper plan for a hand machine, and in 1795 actually took out a patent for the invention. He was, however, soon convinced that he had committed an act of folly, and after being a round sum out of pocket, fairly acknowledged his error. In truth, no hand machine is adequate to the arduous task of separating corn from the straw: If a horse power is substituted, I do not entertain a doubt but that thrashing may be executed; though, on the other hand,

I am equally satisfied, that the attendant disadvantages will effectually prevent such from being generally used.

Before I finish, permit me to give a word of caution to such as have in contemplation to erect a machine, and are unacquainted with the several operations. In many instances good machines have been entirely spoiled by improper management; therefore, a thorough bred feeder should in the first place be sought after. The feeder is, in fact, the director of the whole work, and according to the degree of knowledge and activity he possesses will the success of the undertaking be regulated. A corn miller is thought to require a kind of apprenticeship before a mill is committed to his care; but a thrashing miller is often taken from the plough, and entrusted with an office that requires as much, if not more knowledge and dexterity. In a word, much loss has been sustained from employing unexperienced hands. This was sensibly felt at the outset, and must still take place in every district, though perhaps in a less degree, where machines are not customarily used. The feeder's office, simply considered of itself, is not a difficult one, but when it is remembered, that the care of the whole machinery lies upon him, it will at once be acknowledged, that a servant of superior abilities ought to occupy that office, especially in the case of new erections. In England, where, except in the northern and eastern districts, the thrashing machine is hardly known, the above caution may be particularly useful; for I have it from good authority, that there even a pair of fanners were laid aside, merely because the people employed to work them did not know how to place the riddles and to temper the implement.

Thus I have given you my impartial opinion of your correspondent A. G.'s communication; and am sorry to add, that I cannot discover one fact or observation therein, which throws light upon the history of thrashing machines, or which encreases the general stock of knowledge already possessed by the country, respecting that valuable implement.

I am, Sir, yours, &c.

ARATOR.

P. S. In case of objections being made to the charge of 10 per cent. on the first cost of a thrashing machine, when an allowance is given for *tear* and *wear*, I think proper to add, that as one half of that charge is required to defray the ordinary interest, the remainder will serve as a stock-fund, whence a new machine may be erected, when the old one is worn out; the allowance for *tear* and *wear* being merely intended for defraying the expences of repairing the implement, which, in many cases, are considerable.

FOR THE FARMER'S MAGAZINE.

Account of the district of Lammermuir, in East Lothian, drawn up in 1794, *from the communications of several Farmers.**

THE southern part of East Lothian is hilly and mountainous, and usually called Lammermuir. This district, on the east, commences a little to the westward of Old Hamstocks, and runs from east to west, almost the whole length of the county, part of it even stretching into the County of Mid-Lothian. It may be about 18 miles in length, and from two to eight miles in breadth.

The general soil is muir or moss, mixed with earth, in various proportions. Upon the top of Lammerlaw, Hopes-hill, Mayshiel, and other high grounds, the soil is almost intirely moss; and where it predominates, few plants except heath are to be found. In lower situations, where there is a greater proportion of earth, grasses of various kinds make their appearance; but the moss has hitherto baffled all the attempts of the husbandman. In soils where it prevails, even after a complete dressing of Lime and Dung, the most flattering appearances have ended in an abortion. Sanguine expectations of improvement are, however, entertained at this time from Philosophy and Chemistry, generously advancing to the aid of the husbandman; and it is to be hoped, that this soil, which has been hitherto considered as perfectly unimproveable, may, now from the assistance of such powerful auxiliaries, be rendered valuable to its proprietors.

The climate of the district, from height of situation, is backward and cold. In winter, the whole face of the country is covered with snow, which, in some seasons, will continue for two or three months. The farmers are then obliged to feed their sheep, to prevent them from starving; and often to remove them to the lower parts of Lothian and Berwickshire. In the spring and summer months, a great deal more rain falls there than in other parts of the county. High winds are also frequent, or rather, from the face of the country, are attended with dangerous consequences. Under all these circumstances, it need hardly be observed, that the Lammermuir Farmer struggles with numerous difficulties, and that his situation is extremely hazardous.

The property of this district is divided amongst eighteen heritors, none of whom reside within its bounds. The size of farms is much the same as they have been for a century past;

* This paper was originally intended for the East Lothian agricultural survey, but for reasons unnecessary to be mentioned, was afterwards withdrawn.

past; and considered as store farms, are certainly too small. Few can conveniently keep three flocks, which is reckoned the most advantageous mode of breeding; and those, who attempt it, have their flocks so small, that much unnecessary expence is incurred from herding them.

The quantity of ground that has at different times been under the plough is so great, that it is hard to say, unless it was to extirpate the heath, what could be the inducement. In wet seasons the corn crops seldom arrive at maturity. In 1782 heavy losses were sustained from a total failure of the crop, which, in many places, was not thought worthy of being thrashed.

The grain principally cultivated is oats, different kinds of which have of late been introduced, and these, from ripening more early, have been of material advantage. The new varieties are, 1st, Red Oats, which are good in the grain, and do not easily shake. They require the ground to be in good heart, or the straw will be scanty, but where proper cultivation is attended to, they are a great acquisition in a late climate. 2d, An early sort of White Oats has lately been brought from the neighbourhood of Carnwath, which do not require so fine a culture, and yield more straw. They are not the best grain, but from being very prolifick the deficiency of quality is amply compensated.

The dependence of the Lammermuir farmers is, however, upon their sheep flocks, which of course engages their principal attention. The kind bred, and perhaps best adapted to the pasture and climate, are the black faced sheep, carrying wool of superior quality to the Tweedale sheep. However much the different kinds of fine wooled sheep may suit in favourable climates, and richer pastures, yet it is presumed the present hardy and active breed will be found most profitable upon such grounds as Lammermuir. At the same time, trials are making of the Cheviot breed, and it is said with a promising appearance of success.

It is always the wish of every Lammermuir farmer to have his sheep divided into three flocks, if the size of his farm will admit, and a distinct portion of ground set apart for each. 1*st*, The Ewe flock, for whom is appropriated all the lowest and best grass fields: at the same time, it is reckoned good management, to allow them once a-day, to go to the heights, '*where the heather grows*,' in which they seem to take great delight. The force of custom is so strong with these animals, that, when once used to this poor plant, they will of themselves draw off once a-day to it from the best grasses. Allowing them to do so, is supposed to rear the healthiest sheep, and best feeders.

2*dly*, The

2*dly*, The Hogs, or weaned lambs, demand the farmer's next attention. These require a deep earthy field, covered with strong grass, which will stand a considerable degree of frost before it breaks down. This is provincially styled a *hog-fence*, and is saved from the middle of June to the middle of August, at which time the Lambs are removed to it.

3*dly*, The coarsest and lowest grounds are by these means reserved for the *yeld* Sheep, viz. Dinmonts and Wedders; and each of these flocks require an experienced shepherd to attend them.

About the 12th of April is the time the Ewes generally begin to Lamb. At that time particular attention is necessary, as the Ewes from weakness, often stand in need of assistance, both upon their own account and that of their lambs. When the lambs are three weeks old; the males are castrated, reserving a few of the best for Tups. About the end of June, the whole sheep are washed and clipped; and the lambs are weaned and sent to pasture upon a portion of ground saved from the Whitsunday for that purpose, where they remain till removed to the ground reserved for their winter pasture. When the sheep are to be washed, great care is necessary not to overheat them when driving to the pool; as fatal effects are often occasioned to flocks by plunging them too warm into the water.

About the first of November is the time when the sheep are smeared; the salve used for that purpose, is 1 pint of tarr, and 2 pounds of butter, for 8 or 9 sheep. The farmer is attentive to have this operation carefully performed, from a dread of the hazardous consequences of an imperfect salving.

The draft ewes are sold sometimes in the month of October, but most generally during the spring months. Every farmer, who wishes to have good stock, pays particular attention to this business, and sells, alongst with his old ewes, all those he reckons ill shaped, or carrying coarse wool. By attention to this, and a careful selection of proper rams, a few years perseverance produces great alterations in a flock.

The Wedders are likewise sold about the first of April, to make room for the hogs, which are then sent to the *yeld* flock; the ewes, requiring both the hog pasture and their own, while the lambs are upon them.

From the 10th May to the 10th October, the ewe flock is folded during the night, but the other flocks remain, the whole season, upon the open pasture of the high grounds. The ewes are milked, from the time the lambs are taken off them, till about the middle of August; which produces a considerable

considerable quantity of cheese and butter. The cheese is both used at home, and sold to the lower parts of the country. The butter is all needed, to mix amongst the tarr, for salving the sheep.

Some cattle are bred in the district; but not in any considerable quantity. They are of various breeds: Some of them good, but, in general, little attention is paid to this article of farm stock.

Wages to farm servants are much the same in the northern parts of the district as in the low country, viz. 15 bolls of oats, barley and pease, with a cow's grass, &c. In other parts, yearly servants have 12 bolls of the different grains, with pasture for 36 sheep. It is the general opinion, that fewer inhabitants are in Lammermuir at present than in former times. But it is difficult to assign a sufficient cause for any decrease of population.

The roads leading thro' this district have, till of late, been very little attended to. At present, those from Dantskin to Kil-pallet burn, and from Garvald to Dunse, are in tolerable repair. Few of the rest have ever got a shilling laid out upon them, the whole of the statute money having been applied upon roads situated in the lower parts of the county.

The above is a short description of the present state of Lammermuir, and of the mode of farm management therein practised. We shall now, in a few words, point out the obstacles to its improvement, and how they may be removed.

As in most of the farms there is some good dry arable land, the first obstacle to improvements arises from a want of inclosures. Some Farmers have of late raised excellent crops both of clover and turnips; but to their great mortification, have often had them destroyed by their flocks, from the want of fences. The common muir pasture are so dead and withered, during the winter months, that the sheep are quite restless, to get any sort of green food; and if they once taste turnips, their avidity increases after every gratification.

The arable land in each farm, which is at present worn out with long tillage, might be greatly improved by being laid in grass a few years, or by raising turnips and clover, for the support of the farm stock. The greatest improvement that can be suggested, is to inclose such grounds, otherwise the tenant must hold, whatever improvement he carries on upon them, by such a precarious tenure, that he will scarcely be at the trouble of stepping out of the old beaten path. It is therefore the interest of the respective proprietors, to have all such fields, as are above described, completely inclosed

closed, by which their value will be greatly increased, as the farmers would thereby be enabled to raise turnips and hay, for supporting the flocks during the inclement winter months. This should be done by allowing the tenant a complete reimbursement, at the expiration of his lease, for all inclosures that are *then* in a fencible situation; or should be done by the Proprietors at their own expence, upon the tenant becoming bound, to pay a reasonable interest, during the currency of his lease, for money so expended. It is well known that several proprietors insist, in such a case, for seven and a-half per cent. which is highly unreasonable; for if the tenant is bound to leave them in a sufficient state to his successor, the repairs can never revert upon the proprietor; and at the end of the lease, an increase of rent is the necessary consequence, if this mode of improvement has been judiciously executed.

Lime has been found to produce material advantages in many parts of this district. Every encouragement ought therefore to be held out, so as it may be extensively used. There cannot be a greater encouragement offered than giving suitable attention to the making of good roads; for, at this time, the expence of carriage is sufficient to deter the most part of tenants from so beneficial a practice. It is hardly to be expected that Lammermuir roads can even be so good as those in other parts of the county; but the inhabitants, at the least, have an equitable claim, that the money produced by the statute work, within the bounds of the district, should be expended there, and not carried to roads where they have little or no interest. N.

[*Wishing to wind up the tyth controversy, we take the earliest opportunity of inserting the following Reply to the* Answers of Mr T. S. *in our last number; and entertaining an opinion that a regulation of tythes, however necessary, is not to be expected in the present state of public affairs, it appears expedient to wave the question till a fitter opportunity occurs. It remains only to add, that, as this burden is acknowledged, on all hands, to be a great obstacle to agricultural improvement, every true friend to his country, must ardently long for the return of peace, when this and other important subjects may be calmly and seriously investigated.*]

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Reply to Mr T. S. on Tythes *.

SIR,

ALLOW me to say that Mr T. S. has either fallen into a radical error concerning tythes, or is determined not to understand the principles upon which I combated that tax. In my first letter, p. 61, I shewed, in a variety of instances, the pernicious consequences of an exaction in kind; and demonstrated that tythe, though at first sight an equal burden, was, in reality, the most unequal tax in the kingdom. I then proposed a plan for commuting this tax; which, in my humble opinion, silenced the objections offered by him and others against a commutation. This plan, the result of much deliberation, tended to benefit the tythe-holder, because it admitted him to a share of every advantage which might arise from the growing prosperity of the country. It permitted proprietors to reap the full value of their respective properties, which cannot be got under existing circumstances. It secured the tenantry in the quiet and peaceable possession of the lands occupied by them, and kept the whole manure upon the premises, instead of allowing the soil to be legally robbed of a tenth of its food. In a word, it removed all the trouble and discontent which for ages has accompanied an exaction in kind, and enabled every agriculturist to cultivate his land in the most approved way, without subjecting industry to a tax levied in direct proportion to the abilities of the occupier.

In the answer to my observations, none of these things seem to have been considered by Mr T. S. He is so enveloped with ideas of private interest, as altogether to neglect the prosperity of the public, though it was upon this broad footing that my arguments rested. The principles, upon which I supported a commutation, were, that agriculture would, by such a measure, be greatly benefited; and, of course, the interest of every class concerned therein, whether tythe-holders, proprietors, or farmers, would be much advanced. Whether I have not been so fortunate as to make myself understood, or whether the subject is embraced on too large a scale for your correspondent's comprehension, cannot at this time be ascertained; but certain it is, that few passages of the answers apply to the real question. He says a good deal about right and wrong; about the extent of tythes, and the tenure upon which they are held; and, in fact, argues the question, as if I had proposed

* No 16. p. 440.

proposed to deprive the tythe-holders of their property, without giving full value in lieu of it. I certainly, however, admitted their right, and proposed a full and complete remuneration. I valued tythes at a just price, and most willingly allowed the owners to participate of all the after profits.

Whether tythes are to be considered as a real estate, or as a tax or rent-charge upon the estate, are questions, in my opinion, of little moment; seeing that every proprietor in England may imitate the late Lord Lonsdale, and lay waste his property, if he chuses. The fact is, that tythe is a tax upon produce, and only exigible when produce is raised. It is something similar to the old income tax, which was levied upon the income of the payer, and did not affect his property in the most distant manner. Precisely in the like way, does the tythe-tax operate. If you raise ten bolls, or rather ten quarters of grain; or breed ten calves, and so forth, you must give one of each, or pay the value of it, to the person who is possessed of the right, whether he be a layman or a clergyman. That a payment of this nature deserves to be considered in the same light as if the receiver actually possessed a given share of the estate from which the grain and calves, &c. were produced, can hardly be seriously maintained. The proprietor of the land may sell every inch of it, if he is not tied up by legal restraints. Nay, he can sell the very spot upon which the grain, calves, &c. were produced; so consequently has no partner in the estate. No doubt he is liable, by the laws of the land, to a pay the tenth of what produce he may raise, to the tythe-holder; but this is merely a charge upon the premises, imposed by law, in order to defray the expence of certain public purposes. But as we fully agree in the extent of the right, it were folly to waste words upon the nature of it. The difference betwixt us lies concerning the power of the legislature to regulate the exercise of the right; that is, whether with justice the tax can be changed from a tenth of the produce, to an annual payment in money, according to the rents charged upon the respective properties. I formerly endeavoured to prove that such a commutation would promote the interest of all parties; and your correspondent, without denying my positions, or attempting to invalidate the arguments used in support of them, seems to maintain that the consent of the holders is necessary to make the measure just; and that the evil is not so great as to call for legislative interference.

I observe in the remarks which you have thought proper to make on Mr T. S.'s answers, that you very *apropos* notice the thirlage-bill, which undoubtedly is in every point analogous

nalogous to the measure I have recommended. I may add, that interferences of this kind are made every day with private property, many of them assuredly known to your correspondent. Shall I remind him of the defence-act passed in last Session of Parliament; which laid proprietors under the necessity of relinquishing their property, whether they would or not, in order that barracks might be erected thereupon. Such a measure, though a strong one, did not excite surprize, because the records of Parliament are full of similar instances of legislative interference. Indeed, every road and canal bill contains clauses of the like import; and there are few of our great towns but have, at one time or other, solicited public assistance, to compel proprietors to make a surrender of houses and land for their accommodation and convenience. Mr T. S. may tell me, as he has done already, in the above paper, that all these things 'proceed upon the undeniable principle, that subjects must surrender a *part* 'of their property for the security of the remainder.' I rejoice at the concession, because it supports my argument in the amplest manner. I contend, that tythes are an obstacle to the improvement of the country, and the same is admitted by my antagonist; therefore, upon his own principles, the tythe-system ought to be amended, in order that the country may be fully improved. I observe he marks the word "part" in Italicks, as if the amendment could not justly go farther; but this is manifestly a distinction, without a difference, and was not acted upon in the case of the South Bridge of Edinburgh; where numberless proprietors had to relinquish their whole heritable property, in order that the good town might be ornamented and improved. I have already given my opinion in favours of a full compensation being secured to tythe-holders; and this being done, must maintain that a regulation of tythes would be no greater stretch of power than has been a hundred thousand times exercised.

In the next place, I may remark, that Mr T. S. admits that tythes are unfavourable to improvement; therefore I have a right to infer, that unless he is of opinion that an obstacle to improvement should be suffered to remain, he must of course acknowledge the propriety of correcting the evil, so far as its existence can be ascertained. In making this admission, perhaps he was not aware of the consequences; for, to have resisted successfully, he ought to have contended, as has been done by many others, that tythes were not an obstacle to improvements, therefore not calling for legislative interference. Perhaps the evil of tythes, like the rich man's riches, or the poor man's poverty, has been exaggerated; but in the way which he argues the question,

question, this does not merit consideration. Tythes he allows to be an evil to a certain extent, therefore a suitable remedy ought immediately to be applied.

That tythes in the abstract are a great evil to the possessors of land, will not be disputed by any person who has reflected seriously upon the subject. When exacted in kind, they subject the occupier to numberless inconveniences, besides robbing the land every tenth year of the manure which should enrich and support it. When exacted in money, according to an annual valuation of the crops, it is obvious that the burden is exactly in proportion to the improvements made by the occupier; therefore, when the slovenly farmer pays a small sum, his industrious neighbour is subjected to a heavy tax, merely because he has cultivated his land in a superior way. But these things need not at this time be insisted upon, having been fully discussed in my last. With regard to the extent of the evil, or which is almost the same thing, the extent of tythes, I apprehend that your correspondent is wrong, when he estimates them at four millions and a half. I may, however, sustain his estimate, for it strengthens my cause. It would be a curious circumstance, were relief denied, because the evil is greater than was apprehended.

I mentioned the happy effects of our Scottish system, and he answers, that tythes were not commuted in North Britain, nor, strictly speaking (says he), are they commuted at this day. Pray what did the gentleman mean when he gave you this passage? and did he reflect for a moment upon the proceedings which have taken place in every quarter of the kingdom, in consequence of the act 1633? Have not tythes been valued in every part of Scotland, and can he produce an instance where they are drawn in kind by the titular, or by any other, unless it be a few vicarage articles of trifling extent? That a payment in grain, in lieu of tythe, is made in some places, I readily admit; but this does not alter and vary annually like a tythe in kind, and is precisely of the same nature, though not always of the same value, as a money payment. The act of Parliament sanctions a valuation, and permits purchases to be made at nine years amount of the annual value, in every case, except upon the crown lands; in other words, those belonging to the bishops at the Revolution; therefore, if the law is not acted upon, it is the fault of the proprietors, who enjoy the fullest means of procuring redress.

The account given of the proceedings at the Reformation, and in the reign of Charles I. concerning tythes, is neither fair nor candid. At the Reformation, in 1560, when the

hierarchy was overturned, tythes, like forfeited lands, reverted to the crown, as trustee for the public, and were afterwards gifted to the titulars in the same way as those belonging to the monasteries and abbacies in England, were conferred by Henry VIII. upon the lay impropriators. From 1560 to 1628, tythe was levied by the titulars precisely as is done in England at this day; but the severity of their exactions (it was greater than under the clerical administrators) occasioning general discontent, and the crown threatening to bring forward an act of resumption, a compromize was judged necessary on all hands. This produced the celebrated submission to Charles I. which it is believed was signed by the whole body of titulars; and under that circumstance I must maintain, that the proceedings were in every respect fair and regular, especially as they were afterwards sanctioned by an act of Parliament. Indeed, the decreet-arbitral pronounced by king Charles, appears to be the only measure of his reign, that afforded satisfaction to his subjects. Perhaps, after all, Mr T. S. means to go deeper into the question, and to deny the right of the titulars; though he so eagerly supports the lay impropriators of our sister kingdom. If something of this nature is not in his view, pray what does he mean by alleging that tythes were wrested from the church, or tacitly given up by her, in the phrenzy of fanaticism? The Church of Scotland at no period possessed the tythes, therefore could not give them up; nor had she a right to them, unless it can be made out that the reformed clergy were the legal heirs of their Roman Catholic predecessors. When the Scottish legislature abolished popery, and established a new system of church government, they certainly had it in their power, nay, they had the right to fix upon the terms and conditions under which the new government was to be administered. Whether they made a wise and prudent use of the revenues of the ancient establishment, shall not at this time be investigated; though it may be remarked, that a division of the spoils among the principal actors, was perhaps the means of securing the Reformation in both countries. If the Reformation in England had gone the length it did in Scotland, the crown would, in like manner, have seized upon the whole tythes; but a part of the old fabric being preserved, the forfeiture was of less extent. Had it gone the like length, I am clear that the English clergy, as a whole body, might have been benefited. The church, to be sure, would have been deprived of her rich dignitaries, but the condition of the lower orders, those who dispense the ordinances of religion, and bear the heat and burden of the day, would have been improved.

improved. I put it to your correspondent, whether the majority of English clergymen are not worse provided for than their brethren in Scotland, notwithstanding of the immense sums levied upon the public, for supporting the national church.

The circumstances condescended upon by your correspondent, as a proof that tythes are not an evil of such magnitude as represented, will not avail him much, though he characterizes them as *facts*. That lay-tythes may be purchased in certain cases, I readily admit; but that the greatest part of them can ever be purchased under the present system, I strenuously deny. In fact, lay-tythes are bought and sold every day, or how could such a portion of English territory have got quit of the burden; and I call upon Mr T. S. to say, whether it is consistent with his knowledge, that proprietors have refused to make purchases when sales were offered? If any person is satisfied that tythes are an evil, he will not conclude, because those in the hands of laymen may in certain cases be legally bought up, that there is no necessity for seeking legislative interference. He will consider that almost the whole of the property belonging to ancient families is entailed; therefore unsaleable, without a decree of the legislature. He will reflect upon the pride and obstinacy of others, whose hands are not legally tied up. Judging in this manner, he will pay little regard to the inferences of my antagonist.

The other circumstance condescended upon, is of no weight in discussing the abstract question; though, if correct, it might be produced as a proof of the supineness of the people, who patiently submitted to such a grievous oppression. The effect of tythe is only discovered as improvement advances; and the great body of any people may, by usage, be reconciled to exactions of a still more intolerable nature, as the history of mankind sufficiently proves. Hence no just inference can be drawn in favour of tythes, from the patience displayed by those upon whom they operate; besides, being sanctioned by the legislature, and strictly enforced by the administrators of the law, those interested have made the best of their situation, without enquiring whether an exaction in kind retards the prosperity of the country or not.

Notwithstanding I am clear that the tythe system is injurious to agriculture, I am not altogether satisfied that it is detrimental to the general body of farmers; seeing that land is on that account set to them upon much lower terms, as very properly stated by a correspondent, in your fourth number. It is the restraint upon their operations, and the une-

quality of the burden which occasions discontent among cultivators, not expectation of profit from an exemption. Proprietors may be viewed as more deeply concerned in the removal of tythes; but having bought their lands with the burden, their inactivity to get quit of it, may in some measure be thereby accounted for.

In my last I quoted several attempts which had been made in England, to arrange matters for an application to Parliament, which it is well known were repressed by the circumstances of the times. If Mr T. S. would for a moment consider that tythes are in the hands of the very people who must make the regulation required (in one assembly this is certainly the case), and reflect upon the motives which have been assigned, as influencing those who support it, he will not feel surprize that legal relief has not been more generally sought after. A learned law-lord, no farther back than last session, was heard to declare, that if tythes were meddled with, he would not ensure his hearers the possession of their estates for a single year! Wonderful indeed, that a conversion of grain into money, and changing a tax in kind into a share of the rent paid out of the premises, should produce such a dreadful alarm. Is any man's estate worse secured in Scotland than in England; and yet, in the former, tythes are not collected? or would the adoption of such a plan, as I suggested for our sister kingdom, injure the property of a single individual? Very good judges have viewed it in a different light; indeed the prosperity of all concerned would thereby have been advanced, with the exception of those who thrive upon the numerous law pleas engendered by the system.

But to return from this digression; If a patient endurance of any grievance for a length of time, is to be received as a proof that such a grievance either does not exist, or that it is not of much magnitude, then every first attempt to remove a public evil may be combated in like manner. When Luther argued for a reform of religion, would his adversaries have been successful (we mean in argument), had they answered him, that Europe had been satisfied with the Roman Catholic religion for fifteen hundred years, therefore that a reform was unnecessary. Upon no stronger footing, however, does this boasted fact of your correspondent rest; and with the same success may every first attempt to correct abuse be combated. Because tythes have hitherto been patiently submitted to in England (we recall the expression, for the perusal of any single volume of law-reports will show that it is erroneous), shall Mr T. S. contend that the system is not a

bad

bad one; or rather, that it is not so bad as described by its adversaries. In this way slavery might be supported at Algiers, and heading and hacking at Morocco. That *whatever is, is right*, may be a just philosophical principle, but it rarely holds good when applied to political matters. Indeed, the reasoning adopted by Mr T. S. puts us in mind of the motto on some of the medals circulated by those who stiled themselves '*Friends of the People*,' 'That a nation to be 'free, had only to will it.' A sentiment theoretically true, but practically false, and refuted by the experience of all ages. Mankind are generally guided by a few, and their happiness depends entirely upon the genius and disposition of those who accidentally get possession of power. The great mass of the people, in every country, have nothing to do with the direction of affairs, and their voice is seldom listened to even when lifted up. If that respectable body, the Highland Society, had not taken up the business of thirlage, Scottish agriculturists would still have been saddled with that burden. It had been sustained for ages, and few public complaints were made, because individuals neither knew when nor where they were to seek for redress; yet a law has now passed, which will enable every proprietor to get free of the servitude. Has this law injured the proprietor of the *dominant tenement*? Certainly not; because he gets the full value of the multures from the proprietor of the *servient tenement*. Precisely in this way would the proposal for commuting tythes operate. Here let me ask your correspondent, whether any law existed in Scotland before the thirlage-act passed, to prevent proprietors from selling their multures? If he answers me, as I presume he will do, in the negative, then he must confess that his reasoning on this head, is good for nothing, or else must maintain that the Highland Society undertook a work of supererogation, when they applied for the thirlage act.

Some other parts of Mr T. S.'s letter might have been animadverted upon, were I not sensible that I have already trespassed upon your limits. Suffer me, however, to remark, on the absurdity of calling farmers to come forward with offers of additional rent, in the event of tythes being purchased by proprietors. If an offer of exemption was made by the tythe-holder, then I can discern the propriety of tenants coming forward; but under existing circumstances, an offer for a farm in the lunar regions would be equally praise-worthy.

That mankind are always guided by a sense of real interest, is a proposition which few will support; yet your correspondent thinks, that because the evil of tythes has been

long overlooked, it is not of magnitude. I beg he would not lay too much stress upon this specious conclusion, lest, like the rod of Egypt, it should pierce his own side. Mankind are prone to error, and apt to neglect their best interest; or how comes it about, that nearly one thousand men are regularly paid by the landed interest of Scotland, and a still greater number by the public at large, merely to teach them their duty, in the performance of which their truest and best interest lies? Nay, the establishment of the very tax under consideration, proves that mankind are not so wise as your correspondent imagines; for, if they were able to comprehend their duty, consequently to pursue their real interest, why were teachers thought necessary to instruct them in the one, and show them the best road to the other.

I conclude by remarking, that though tythes are, in many instances, leniently drawn, particularly clerical ones (the causes of which need not at this time be mentioned), the general question is not thereby affected. It is the system itself which I combat, not the mode in which it is executed by individuals. In a word, I confess myself unable to ascertain the object which your correspondent has in view. He candidly acknowledges, that '*tythes are unfavourable to improvements, often vexatious to the occupier of land, and attended with odium, loss, and trouble to the exactor*;' and yet the apparent scope of his communication is to prove, that tythes are not an evil of magnitude. This reminds me of the Billingsgate lady's speech, recorded by the Tatler, or some other periodical essayist. "*I own I am a whore*; *I own I am a thief; but as for any other thing, say black is the white of my eye.*"

I am yours, &c.

A Friend to Improvements.

P. S. I omitted to notice the side blow aimed at the dissenters; and cannot help here remarking, that it is unjustly bestowed. If tythes are a part of rent (which is unquestionably true, under the present system), what does it signify to the tenant, whether the receiver is a churchman or not. In the event of a proprietor receiving rent by a deputy, a tenant might, with the same propriety, refuse payment of the stipulated sum, because the deputy's religious principles were not in unison with those entertained by himself.

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FOR THE FARMERS MAGAZINE.

Hints regarding Potatoes.

I. Receipt for boiling Potatoes.

1. THE potatoes should be sorted, and those of the same size dressed together; for it is absurd to suppose, that potatoes of different sizes can be made properly ready at one and the same time.
2. Cold water, and not hot, should be put with them into the pot, so as merely to cover them, as they contain a great quantity of water themselves.
3. When they are boiled, the water should be taken from them, and the pot should be put again upon the fire, for some time, to evaporate all the moisture.
4. Either salt water should be used, or a good deal of salt used with fresh water. Cold water also should occasionally be thrown in, to damp the violence of the heat, and to prevent the potatoes from being over-boiled.
5. They should be served up with the skins on; and when properly prepared in this manner, may supply in a great measure the use of bread.
6. If skinned, they should be thoroughly mashed, and put on a plate into an oven; and when brought up, kept hot before the fire, in which state, with melted butter, they make most delicate eating.

II. On the best sort of Potatoes.

The best sort is not the round, but the flat and broad kind; for they boil equally, and to the very heart, which is not always the case with the large round ones. There is a red sort, a kind of small yam, originally from Ireland, that is very productive; and, if kept till spring, it grows mealy or farinacious; but if eat earlier, it is very apt to disagree with the stomach, and to occasion looseness, particularly in children. S.

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TO THE CONDUCTOR OF THE FARMERS MAGAZINE.

Scheme for sowing Wheat Lands, when the ground is wet.

SIR,

OCCUPYING a considerable tillage-farm, much of which is well calculated for producing wheat, I have often been disappointed in my expectations, when wet weather ensued in the end of autumn, after executing the several preparatory steps in the most proper and efficient manner. You know very well that land completely summer fallowed, when once soaked with rain at the above period, is rarely in a condition for resisting the pressure of the horses till the spring season arrives; and that wheat sowing, under these circumstances, must either be given up, or the ground and crop subjected to damage and injury, from the poaching of the horses during the process of harrowing. Upon soils adapted for wheat, no other grain can be substituted that will afford a crop, equal, in value, to that of the golden grain. Hence it becomes an important object to secure the proper season; or, if it is missed, to devise schemes for accomplishing seed work in the best possible manner.

Having sometime ago had occasion to peruse Mr Donaldson's treatise on British husbandry, I noticed that he recommends a timber axle, long enough to extend across the ridges, whether 12 or 18 feet wide, and to which as many harrows might be hung as sufficient to cover the ridge. By furnishing wheels to the axle, and drawing it by horses, who stepped in the open furrow, he adds, that the work may be safely and sufficiently executed, or words to that import. I last year tried the plan recommended, but found, in the first attempt, that it did not answer; for, if one horse went a single foot before the other, the wheels ran into the ground, and occasioned an ugly rut; besides, there was no getting it turned at the end of the ridge, with any degree of ease. Reflecting upon these things, and strongly desirous of rendering the implement more perfect, I caused a joint to be made in each end of the axle, within the wheels, and placed a pair of slender shafts before them, in which the horses are yoked; and I have the pleasure to add, that the alteration succeeded to my wish. I last year (1802), sowed ground in a state of perfect mire, which was harrowed in the way above described, and the crop proved not inferior to any in my neighbourhood. Some of my friends have

have also sown wheat in like way. In short, the machine promises to be an useful article in wet seasons, though no doubt our earnest desire is to have few occasions for yoking it.

I am yours, &c.

W.

NOTE BY THE CONDUCTOR.

THE Conductor, about twelve years ago, influenced by the like motives as guided his respectable correspondent, got a machine of the same nature made; but after giving it a fair trial, was obliged to lay it aside for reasons precisely similar with those stated to have occurred in the first attempt made by Mr W. He is extremely happy, however, to hear that such alterations have been made as to render the machine practically useful. The sowing of wheat is now become one of the most important operations upon a tillage farm. Many farmers, to gain a season, have resorted to an early seed time, but even this is attended with many disadvantages. At any rate, from the great quantity now sown upon bean stubbles, the most active person may be thrown behind, and lose an opportunity often not to be regained, till spring time arrives.

N.

TO THE CONDUCTOR OF THE FARMERS MAGAZINE.

On the Culture of Turnips, &c.

SIR,

IN my letter of 13th January (vide p. 147.), I stupidly enquired, 'How can your friend make his turnips '(where they are but 11 inches distance in the rows) as 'large as 8¼ inches in diameter?' and was led to this by having got into my head, that a distance of 5½ inches only remained for each plant; whereas it is evident, upon reflection, that they might even grow to the size of 11 inches, without doing more than filling up the vacant space. You will oblige me, by admitting this acknowledgment into your Magazine, as early as possible; for I will never persist in an error, after I have discovered it.

In your 2d vol. p. 376, mention is made of a graduated spring-steel yard being fastened to the head of a plough, for ascertaining the force necessary to work it. I shall be glad

to

to learn where a steel yard of this kind is to be got, as it would be an useful instrument to every farmer concerned in the management of tillage land. I am also informed that a machine for weighing live stock is very common in Scotland, a description or drawing of which would prove acceptable to many of your English readers.

Permit me to mention an agricultural implement that is getting fast into practice in this quarter, though invented several years ago. I mean a drill for sowing grain of every description, and with any quantity you please. It may be used by the most ignorant farmer, without danger of mistake; being simple in its construction, and not easily put out of repair. The inventor is Mr C. Perkins, cabinet-maker, Stockton upon Tees, who sells them at the low price of L. 6 : 16 : 6. An additional box may be had to this drill-machine, for sowing along with the seed any kind of manure, such as ashes, rape dust, pigeon dung, soot, &c. and he also makes a set of hoes, to fix on occasionally, to clean the different sorts of growing grain. I am not personally acquainted with Mr Perkins, but must do him the justice to say that, for real use, durability, and cheapness, his drill is superior to any I have yet seen. I have used it with success, on strong stoney ground, for several years, and my expectations have not at any time been disappointed.

I have the pleasure to inform you, that the drill-husbandry for grain, is becoming very general in the north of England, particularly for wheat, beans, and pease. You will likely say, why don't we include turnips as an article of drill-husbandry, especially as they are taken as a first crop, upon which the success of the after rotation must necessarily much depend? If you were to put this question, I could only answer, that we are very well satisfied with the crops of tha root which are got according to our present system; and I explained this at such length in my former communication, that it is now unnecessary to return to the subject.

I am yours, &c.

A YORKSHIRE FARMER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

A Short Account of Dr William Halyburton, with some extracts from his Georgical Letters.

SIR,

I beg leave to hand you some extracts from the Georgics of our countryman, Dr Halyburton, a work probably unknown to the

the greateſt part of your readers. It is not with much of the Doctor's life that I am acquainted; but the following particulars are communicated on the authority of ſome friends who were in habits of intimacy with him from his youth. I only lament my inability to preſent a fuller account of this gentleman, as he certainly poſſeſſed a conſiderable degree of learning and genius, and enjoyed ſuperior opportunities of acquiring a knowledge of ſociety both in Britain and America, than many of his cotemporaries.

Dr WILLIAM HALYBURTON was born at Hollandſide, in the pariſh of Preſtonhaugh, and county of Eaſt Lothian, about the year 1720, his father being tenant of that farm, and of which his nephew is tenant at this day. He was connected with a number of the moſt reſpectable tenants in that opulent county, which circumſtance probably gave his mind a bias to agricultural reſearch, and influenced him to write a volume of Georgical Letters, at an advanced period of life. Be theſe things as they may, he received a ſuitable education for the church, and for a time acted as tutor to the family of Sir James Dalrymple Bart. of Hales, through whoſe intereſt he was appointed chaplain to the firſt batalion of the Royal Scotch Regiment of foot, then commanded by Lieutenant General St Clair. When rebellion raged through the land in 1745, Dr Halyburton (then in Sir James Dalrymple's family) connected himſelf with a volunteer company at Muſſelburgh, and on that occaſion preached a ſermon deſervedly admired, and afterwards printed. As a pulpit orator, the Doctor poſſeſſed numerous qualifications. His figure was comely; his language bold and animated; and his ſtyle pure and correct. His ſubſequent appointment in the Royal Scotch, however, removed him to diſtant lands; and prevented a ſettlement at home, which undoubtedly he would ſoon have obtained.

It is believed he accompanied General St Clair in the unſucceſsful expedition againſt Port le Orient in 1746, and it is certain that he embarked with the Royal Scotch at Cork in 1757, for America, with whom he ſerved during the whole of that war. When the regiment landed at Halifax, Nova Scotia, the chief command was held by the late Earl of Loudon, better known in this country by the name of Lord Loudon Campbell, of whom the Doctor was in uſe to recapitulate many characteriſtical anecdotes. During the time he ſerved with the Royal Scotch, the Doctor was the intimate companion and favourite of the celebrated Lieut. Col. Forſter; indeed moſt of the officers were particularly attached to him. Perhaps both before and after, as brave or even braver officers may have held commiſſions in that ancient and reſpectable corps; but at no time did it contain officers poſſeſſed of greater wit, and more poliſhed manners, than at the

period

period in queſtion. Afterwards, when promotions and removals brought about almoſt a total change of field officers and ſubalterns, Dr Halyburton quitted the regiment, and returned to Britain. He was then nominated chaplain to an eighty gun ſhip of war; but in this ſituation he did not long continue.

The future life of Dr Halyburton cannot be well elucidated; but it is believed he chiefly reſided in London, which is aſſuredly the beſt receptacle for a man of letters. That his pen was not idle during his reſidence in the metropolis may be ſafely affirmed, though few of his productions can be expreſsly condeſcended upon. It is well aſcertained, that a ſmall tract, called the *Memoirs of Magopica*, was wrote by him at an early ſtage, when he was a candidate for holy orders. The Georgical Letters were printed in 1782, and contain a number of ſenſible and intelligent obſervations, mixed with others of a different deſcription.

When advanced in life, Dr Halyburton returned to his native country, and reſided with his brother (then alive), and other friends in Eaſt Lothian. In a word, he finiſhed his life at the age of eighty years, in the very houſe, perhaps in the very room, where he drew his firſt breath; circumſtances that rarely happen in the lot of few people, particularly thoſe of learning and genius.

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Extracts from the Georgical Letters of Doctor Halyburton.

HERODOTUS, as I remember, relates, that in his time the wheat grown on the plains of Babylon yielded 300, 350, and 400 fold; that the natives reckoned the firſt a bad, the ſecond an indifferent, and the third a good increaſe; and that the leaves of the wheat were three and four inches broad. As the hiſtorian mentions nothing ſingular in the culture, one concludes that the corn had been ſown in the common way of random broad caſt.

We read in Holy Writ of an hundredfold after random ſowing expreſſed in the plaineſt terms. Though in parable, there is no appearance of figure. It means a not very common, yet a known product.

In the province of New Jerſey 1¼ peck is the quantity commonly ſown at random on an acre, and 15 buſhels, or forty fold, the moderate increaſe. Yet ſuch wheat has tillered but little, and is very ſhort eared. What wonder? A negro

negro fellow with a couple of palfreys at a half trot, for plowing, had discoloured the land at the rate of 3 and 3½ acres a-day.

From the two first instances one is ready to suspect, that the elementary powers of Nature are debilitated by time.

The plains adjoining to the probable site of Great Babylon, now possessed by the stupid Mussulman, have not that amazing fertility they had in the days of Herodot.

The land of Jewry, less extensive and equally mountainous, is now more sterile than Wales.

The instance from the western world, one would think, exhibits Dame Nature, man unopposing, prone to luxuriate; still in her prime.

The fertility of regions is often the effect of human industry. Campania, once the garden and granary of Italy, is now a stinking poisonous waste, from the depopulation made by barbarism succeeded by slavish superstition. Grass uncropped, on level land, will in time give a surface of morass.

A continuation of good husbandry, with judicious manurings, deepens the soil from year to year. Short leases and frequent scourging crops, while they deteriorate, diminish. Limeshells laid on shallow grass ground with a clay bottom will in few years render it arable.

Besides moral and political, there are natural and preternatural causes affecting fertility. Situation with regard to mountains, woods, bogs, bays, seas, fish-banks and the ocean: the sun, the sky, the climate, the exhalations, the effluvia, the fountains, the floods——all these and more, singly, or in multifold combination, give or with-hold bread from man.

Newfoundland, Cape Breton, and the south-eastern skirt of the peninsula of Nova Scotia, being within the range of the bank fogs can never be made frugiferous.

Ireland has her weeping sky. Berkley, graceful and profound, was but an ideal patriot when he wrote his Querist, so far as it regards corn husbandry. Drain the bog of Allen and all other bogs, green Erin will never ageee with the plow, but as it is subservient to flax and pasturage. What avails the flattering prospect of June and July, if it is to fall a sacrifice to the Atlantic rains of August and September? In granting bounties on grain exported, the parliament of that kingdom made a well-intentioned effort. Still they were tugging against the stream.

Her numerous harbours, by far the best in Europe, seem as if intended by Providence to invite Ireland to plow another element. Time was, when she grew the best oak in the world.

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The roof of Westminster-hall, coeval with the walls, is now fresh as from the hands of the carpenter.

The vegetation of a country depends on the latitude, the elevation or depression, the cloudiness or sunshine, the breeziness or stagnation of air. The top of Penmunmaur is colder than John-a-Grott's House. The mathematicians sent by the late kings of France and Spain, to measure a degree of latitude under the equator, experienced more cold than those sent on the same errand to Lapland. They took their station 2000 toises (almost 2¼ miles) above the level of the Pacific. At Lima, in the 13th degree of south latitude, there is neither cloud, rain nor thunder. A garua or thick mist prevails for some weeks before and after the winter solstice. Yet lucern grows in abundance. At Tumbez, nearer the line, not a speck is ever seen in the heavens.

The western Cordillera of the Andes gives all climates. At bottom grow cochineal, and the hottest plants; higher grow the tropical; higher are wine and oil; over these are the regions of corn, of grass, of wild goats and sempiternal snow.

The thermometry of the whole terraqueous is variable. Armies of old marched over the Tiber on ice. The Norwegians for ages had a settlement on Greenland. For ages they have been cut off from it by an increasing icy continent.

When Anson sailed round the world, he found the weather colder in the southern, than in the same latitudes in the northern hemisphere. A Dutchman about that time sailed under the north-pole star, in fine weather. The sun being annually above seven days longer to the north than to the south of the line, seemed to warrant the greater warmth, a permanent phænomenon. It is otherwise. Falkland's isle is now warmer than Newfoundland, and the north pole inaccessible for storm and extreme cold.

Oats will grow farther north, or, which is the same, on more elevated grounds than wheat or two-rowed barley. The best oats I have seen grew in latitude 55 and 46 minutes, 10 or 12 miles inland, and about 700 yards above high water.

In the lower part of Virginia wheat is shrivelled like small pepper-corns. In more southern latitudes, equally low, on the eastern continent it is plump and good. A clearer ether gives an intenser sun. At Halifax in latitude 44. 45. near 100 yards above high water, my Fahrenheit, when hung in the shade 12 feet from the ground, from 10th to 22d August, 1763, both days inclusive, ranged from 81 to 88½. Yet 27th December, 1762, evening frost, calm, clear stars, the thermometer at that place sunk to 5 below 0.

Preternatural causes affecting fertility are earthquakes, eruptions,

tions, disruptions, waterspouts, hurricanes, comets, streamers, meteors, stellar, planetary and lunar influences. Out of human ken, all these seem lawless. Viewed through mortal optics, they appear fortuitous, absurd and discordant. Yet superior intelligences calculate a deluge or tornado as we do an eclipse of the moon; and in cities sinking to the great abyss discover design, order and harmony.

Of earthquakes, that of 1st November, 1755, whereof devoted Lisbon was the focus, was the most extensive. All Europe felt it. In a fortnight it shook Boston in New-England, whence it proceeded in a south-westerly direction to South Carolina.

Emanations from so may substrata, some nutrative, some tartareous, emerging into day, could not fail in part to enrich, in part to debase the fluids. Followed crops over Europe, in some territories good, in more below mediocrity. The year 1757 is memorable as to the British isles. In the eastern and most corn-bearing division of Great Britain, by some broiling days in July, the proverb, 'that a crop of corn never suffered 'by heat,' was reversed. The harvest was cloudy and wet, and ended with stagnant air and thick dews. In the west the crop was good. Over Ireland the best for above 80 years.

There are certain small postulata proper for a man to carry about with him when he means accuracy in husbandry. For example, in plowing an acre with a furrow nine inches broad, the plow goes just 11 miles; with a furrow of eight inches, 12 miles three furlongs; and with a furrow of six inches, 16½ miles.

To the draught cattle it is much the same with which of these furows the day's work is done; for if with a broad furrow their toil is increased, their velocity is diminished; and if with a narrow furrow their velocity is increased, their toil is diminished.

To the plowman both cases are reversed. The broader the furrow, the less both toil and velocity; and the narrower the furrow, the greater are both. Velocity, you will observe, is toil in another shape. A sluggish plowman can ease himself somewhat by means of the ploughtail, but it is at the expence of the cattle.

It follows, that ſtrength and dexterity are requiſite for a march of 16½ miles, with one foot higher than the other, and a conſiderable ſhare of toil beſides, be the plough irons ever ſo ſharp and well ſet.

It were proper alſo to remember, that the Wincheſter buſhel is a cylinder 18½ inches diameter, and 8 inches deep, containing

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of courſe 215,042 cubic inches, and conſiſting of eight gallons of 2688.

A Meaſure of capacity for corn is abſurd, as is avoirdupois weight, Troy only being lawful. An Engliſh acre contains 43,560 ſquare feet; a Scotch 55353,6; an Iriſh 70,560; a Paris arpent 32,400 royal feet; a Roman *jugerum* 269305,6 Engliſh feet. The Engliſh foot being ſuppoſed 1000, the Paris is 1068, the Roman 967, the Greek 100,724.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I HAVE long entertained an opinion that a greater benefit may be gained from cultivating oats than barley, provided the ſame preparation was beſtowed; therefore have almoſt entirely thrown the laſt mentioned grain out of my rotation. Circumſtances, however, often occaſioned ſome fields not to be ready at the uſual period of oat-ſeed time, ſuch as unconſumed turnips, land previouſly in pease not being properly prepared, &c. and theſe were generally reſerved for a barley-crop. The increaſed malt-tax, and the conſequent depreſſion of barley prices, induced me, laſt year, to try oats, ſo far back as the 18th of May, and I now trouble you with the reſult.

I had a ſmall field under flax in 1802, and which, as uſual with land after that crop, was far from being in good order. It got the firſt furrow in autumn, was croſs ploughed about the firſt of April, and received three other ploughings, together with ſufficient harrowing, rolling, and hand-picking. I then ſlightly dunged the field, ſeed-furrowed it immediately, and ſowed early Dutch or Frieſland oats. The ſeed, as already ſaid, was ſown on the 18th of May; but, from the dryneſs of the weather, did not appear above ground till the middle of June. Notwithſtanding which delay, the crop was cut on the 11th of September, there having only intervened 116 days betwixt ſowing and ſhearing.

The crop was a tolerable one, as laſt ſeaſon went. I do not mean, however, to lay any ſtreſs upon this circumſtance; but merely to ſhew that an early variety of oats may be ſucceſsfully cultivated at a period more advanced than generally imagined. It may be alledged, that the trial was favoured by an early harveſt; but it muſt alſo be attended to, that the intenſe drought prevented vegetation for a long while. Probably the benefit gained from the earlineſs of harveſt, only compenſated the waſte of time originally ſuſtained from the ſeverity of the drought. Yours, &c.

A RURAL OECONOMIST.

BRANCH II.

RETROSPECTIVE VIEW OF BRITISH HUSBANDRY FOR 1803.

PERHAPS in the courſe of this year the ſcale of improvements has, in a great meaſure, remained ſtationary; and various reaſons might be aſſigned in ſupport of this opinion. The attention of the country, for the greateſt part of it, has been ſedulouſly devoted to matters of a different deſcription; and rarely does it happen, that internal improvement and external diſſenſion accompany each other. The ſcarcity of hands, in ſeveral diſtricts, alſo prevented different works from being executed, eſpecially in places circumjacent to thoſe where barracks and other public works were erecting. Indeed, the wages of maſons and carpenters roſe to ſuch a pitch, as abſolutely interdicted every private undertaking, unleſs thoſe concerned laid prudential motives altogether aſide, and reſolutely determined to go forward, in ſpite of every obſtruction. The ordinary and common operations of huſbandry, to be ſure, went on as uſual, though, in many inſtances, at an increaſed expence; but extraordinary undertakings, or ſuch as only caſually occur, were retarded conſiderably. In fact, the increaſed expence exceeded the abilities or means poſſeſſed by the great body of practical agriculturiſts, and occaſioned various undertakings, in contemplation, to be poſtponed till a fitter opportunity ſhall arrive. All theſe things combined, aſſuredly depreſſed that ſpirit of improvement, which, for ſeveral years paſt, has been rapidly ſpreading over Britain; and unleſs produce riſes in price, and maintains a nearer affinity to expenditure, muſt neceſſarily continue to operate in various degrees, according to the circumſtances in which different diſtricts are naturally or accidentally placed.

Weather, and its Effects upon the Crop.

The weather, during the greater part of 1803, was exceſſively dry, and, through the months of July and Auguſt, warmer and more ſerene than generally experienced in this iſland. The eaſt coaſt ſuffered in ſeveral reſpects, from ſuch an uncommon drought; but, in the oppoſite ſide of the country, no injury was ſuſtained, but rather much benefit was derived therefrom. As the eaſtern ſide of Britain is principally employed in tillage, apprehenſions were, at one time, entertained, that the grain-crops would be materially curtailed; but, though this actually happened in many places, it does not appear, from the numerous communications tranſmitted to us, that any thing like a general deficiency will be

experienced. In ſome diſtricts the wheat-crop partially ſuffered by mildew, and, in many others, oats were damaged by inſects or caterpillars, that preyed upon the grain before it reached maturity; but, with theſe exceptions, the crop may be ſafely viewed as approximating to an average one, eſpecially ſo far as reſpects conſumption; the different grains (oats excepted) being generally of fine quality, and containing a greater portion of nutritive ſubſtance than is commonly extracted.

To the weſtern ſide of Britain, where the climate is naturally humid and cold, the dry weather proved highly advantageous. The vegetative power of the ſoil, which, there, is feeble and languid, was animated and excited by the ſun's powerful rays; and, tho' ſoured and deadened by the humidity of ages, was cheared and reſtored to action, by getting quit of the ſuperfluous moiſture. An early and a dry harveſt, rare circumſtances on the weſtern coaſt, permitted crops of every kind to be harveſted and ſecured in a very ſuperior ſtile; and conferred a value upon the ſeveral grains which the backwardneſs of climate ſeldom ſuffers them to attain. As the graſs-huſbandry, however, is extenſively practiſed in all the diſtricts to which we allude, a heavy loſs has been latterly ſuſtained from the fall upon live ſtock, chiefly occaſioned by the almoſt total failure of after-maths and turnips in the eaſtern and midland counties. This declenſion of value, in live ſtock, will probably place both ſides of the iſland upon an equal footing at the end of this uncommon ſeaſon; but, if the ſummer prices had been ſupported, it would not be difficult to maintain, that the year 1803 would deſerve to be ranked as the beſt, in the memory of man, to agriculturiſts in theſe ſituations.

On the fall in the price of Live Stock, and causes thereof.

We have alluded to the recent depreſſion of live ſtock markets, and ſhall now ſay a few words upon the probable cauſes of that depreſſion. To us they appear to be of a temporary nature, not of a laſting tendency. The ſubject, to be ſure, is complicated and abſtruſe; and out of it queſtions may ariſe, eaſily admitting ſpeculation, though difficult to ſolve. We ſhall ſtate our reaſons for thinking that the fall cannot be laſting, and leave their juſtice and rectitude to be aſcertained at a future period.

The continued dryneſs of the ſummer months, ſtunted the paſture and meadow lands, and prevented the ſequence of demand, which uſually prevails at the beginning of autumn, in order that the ſtock of ſummer fed beaſts may be replaced. The ſame cauſe leſſened the quantity of fogs or after-maths, and rendered lean ſtock of every kind a heavy article of ſale, before a general fall occurred. It is obvious that, if turnips had ſucceeded,

ceeded, markets would soon have brightened up; but, as that article generally failed, less or more, in almost every district, immense numbers of cattle and sheep, which otherwise would have gone to the stake and the fold, were at once thrown into the market, because the owners were totally unprovided with food for supporting them. This increased supply, of course, glutted the markets in every quarter; nor could it possibly be otherwise, because a very considerable share thereof, in the common course of business, could not have appeared for three, four, five, and even six months afterward. The effect of this glut cannot possibly be overcome, till, like the stomach, when oppressed by a surfeit, the immediate cause is completely removed. That this must soon happen, appears to us a necessary consequence; for, a continuance of such extraordinary supplies, is physically impossible, under the circumstances of the country. There is only the stock of the year to consume; whereas, at the present time, we are anticipating our supplies several months before they naturally fall due, and therefore must feel a proportional scarcity before the return of the grass season. The fact is, that much of the beef and mutton now on sale, would, in other seasons, have remained in the hands of the feeders, as a store for spring food, and would then have been sold, increased, perhaps, twenty per cent in weight. This, of itself, will afterwards be felt severely; it being much the same as taking one-fifth, or one-sixth of these animals out of the market, that quantity of beef and mutton being actually lost by the premature sales that have been necessarily made. These things must, and will be attended with the sure and certain consequence of making the after scarcity in direct proportion to the actual plenty at this moment, and furnish serious cause for alarm, respecting the prices of butcher-meat, after the present forced and unnatural supplies are exhausted. In fine, the failure of grass and turnips necessarily occasioned this forced supply; the want of keep, rendered it necessary to make sales upon the best possible terms; the sellers being more numerous than the purchasers, ensured a command of the market to the latter, of course reduced the prices; and a great number of both cattle and sheep, that, under different circumstances, would have remained for supplying spring, being already killed, a scarcity, consequently an increase of price, may assuredly be expected.

Corn Markets.

There has been no want of grain for sufficiently supplying the public markets in every quarter, and prices have been abundantly moderate, considering the market value of money, or, which is the same thing, its ability to discharge rent, pay labourers,

ers, and liquidate taxes. Still, notwithſtanding the regular ſupplies furniſhed, conſiderable importations have been made from foreign countries, which practically demonſtrates, that the extent of home-raiſed produce is below that of the actual demand. The corn-laws continue to be but a dead letter, and their inefficiency is ſufficiently ſhewn by daily experience. If the crops of grain, raiſed in Britain, exceeded the conſumption, all the art of man could not raiſe prices, nor would any bounty, hitherto paid, equalize the rate of rents, labour, and public burdens, with thoſe paid by the tenantry on the continent; of courſe, one of two things would neceſſarily happen, either the rate of rents would be materially reduced, or the farmer would be ruined. On the other hand, we have had a trial of free importation from foreign countries for five years, and yet prices have not been reduced ſo much as to admit of exportation. All theſe things effectually prove, that the ſyſtem of corn-laws, eſtabliſhed in Britain for more than a century paſt, have not governed the markets, but that the extent of the crops at home, when oppoſed to the increaſed conſumption, has entirely regulated the riſe or fall of the prices. In fact, the corn-laws, under the preſent ſtate of Britain, injure, inſtead of benefiting, the practical agriculturiſt. They ſeclude him from foreign markets, without reſtraining foreigners, unleſs when prices are very low, from interfering in the home ſale. We have often ſaid, that a free and open trade, except in caſes of dearth, would be preferable; and every day's experience corroborates the opinions we have given. By adopting ſuch a liberal ſyſtem, perhaps the rate of rents might for a ſhort time be partially depreſſed, but matters would ſoon run into their juſt and proper channel. According to the principles upon which corn-laws are uſually ſupported, heavy protecting duties ought to be impoſed, in order that the increaſed value of rent, labour, and taxes in Britain might be counteracted; but, as the manufacturing intereſt, will always oppoſe, and that ſucceſsfully, every attempt to lay on ſuch equitable duties, the beſt alternative that can be choſen, is, to meet them on their own ground, and throw open the trade altogether. This, we are almoſt ſure, would prove highly beneficial to every perſon concerned in the growth or ſale of corn. It would put the trade upon a ſtable footing, whereas, at preſent, it is the moſt uncertain and fluctuating one that can be followed.

Rent of Land.

It does not appear that land-rent has experienced any alteration during this year, unleſs ſo far as the legal impoſition, by act of Parliament, is to be conſidered in that light. Whether

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rent has aſcended to its utmoſt pitch, and, as things in this world ſeldom remain ſtationary, may now receive a fall of leſs or more extent, are questions of an intricate nature, out of our way to diſcuſs. One circumſtance, however, deſerves attention. From the increaſe of manufactures, the ſcale has, within theſe few years, mounted up to a height which the keeneſt of our ancient valuators never, for a moment, ſuppoſed it could attain; therefore, by analogy, it may be inferred, that if the trade of Britain continues to flouriſh, as it aſſuredly has done for many years paſt, a greater riſe may ſtill be expected. The inference is plauſible, though we are not diſpoſed to place much ſtreſs upon it, eſpecially when we reflect upon the great burdens latterly impoſed upon the tenantry, which tend much to enfeeble their exertions, conſequently to leſſen their ability for paying high rents. The trade of the agriculturiſt, like that of the manufacturer, is a delicate affair; and, when once checked, will not ſoon be revived; nor will capital, if once extracted, be eaſily reſtored. No doubt, agricultural capital will ſtand many blaſts, before it is diſſipated; but once wafted away from a country, it rarely, if ever, returns. The ſituation of other countries, once the granaries of the world, now converted into barren deſarts, illuſtrates ſufficiently the truth of our general doctrine. Britain, at this moment, is hardly better cultivated than ancient Italy once was, and yet we ſee the aſtoniſhing change which has taken place in the courſe of 17 or 18 centuries. Spain, till the end of the 16th century, was internally a rich and flouriſhing kingdom, or rather kingdoms; and now, alas! how miſerably is ſhe reduced. We do not mean to maintain, that this or that meaſure will produce this or that conſequence; but are merely ſupporting the truth of the general poſition, that agriculture, like trade, if once injured and driven backward, is not eaſily reſtored to its former ſtate.

Some conſolatory reflections occur, and we cannot avoid noticing them, becauſe they afford full proof that the adminiſtration of Britain is not inattentive to her national proſperity. The bill, paſſed in laſt ſeſſion of Parliament, for promoting improvement in the Highlands of Scotland, will, in our humble opinion, produce the moſt ſalutary and beneficial conſequences; and, at all events, proves that the welfare of the country is regarded, by thoſe in power, with a paternal care. We rejoice at obſerving ſuch attention ſhewn by the Legiſlature to thoſe remote diſtricts, and augur, from ſuch attention at the preſent diſturbed moment, that, when the *din* of arms has ceaſed, many other rural grievances will be inveſtigated and redreſſed. We need not be more explicit in this place; our opinions on the grievances which affect agriculture, being ſufficiently underſtood. In the

case of Highland improvements, no measure could be so well calculated as a leading one, or to further the intended end, as rendering the country accessible, by the erection of bridges, and the formation of roads. This is the first opening to improvements in every country, therefore most judiciously chosen, in the present case. To render the measure more promptly successful, the bill should have contained a clause, authorising the majority of landholders, in each county, to assess absentees and opposers, in their share of the local burden. The want of this clause is already felt, and will occasion the trouble and expence of procuring particular acts, all which might have been saved, by a general enactment.

Income, or Property Tax, as affecting Farmers.

The income, or property tax, is much complained of by many farmers, as proceeding upon a false assumption, with regard to their profits, and thereby subjecting them to a heavier burden than is laid upon other classes of the community. We have already stated similar sentiments, and must give, as our opinion, that the occupiers of land are entitled to redress, in this particular. No amendment upon the clauses of the bill can meet the objection; for it is the principle of taking one half of the rent as the criterion of income, which is complained of, seeing that it lays a foundation for the most oppressive exactions. Subjecting the occupier, in the first instance, to pay for the proprietor, is also considered (at least in Scotland) to be a grievance; in fact it will, to a certain extent, operate as forehand rent. Some proprietors seem to view this clause as disrespectful to them, and as if they were not able to pay their own taxes. Where abatements fall to be made to proprietors, several serious consequences may accrue, from dividing the payment of their tax, unless particular care is used in forming the returns.

Malt Tax.

Whether any committee will be appointed, in this session of Parliament, to investigate the relative values of English and Scottish barley, is not yet ascertained; but in one thing we are clear, that, in the event of such an investigation being entered upon, an act of gross injustice will be committed upon Scotland, if her ability to pay a full malt tax was to be determined by the relative qualities of this year's crop. To be just, the committee ought to extend their enquiries further back, and include the crops of the last and preceding years. The summer and autumn of 1803 was more favourable to the growth, or rather to the quality of Scottish barley,

ley, than those of any year in the remembrance of the oldest man living; therefore no correct conclusion can be formed for regulating a tax, which, in all probability, will not soon be repealed, from an enquiry limited to the crop in hand. Even under all the advantages of the present season, and at prices lower than those given for other grains, English barley is already importing, which affords good grounds to suppose that it maintains a part of its wonted superiority. A considerable quantity of Scotch barley, of crop 1802, still remains on hand, and must now be sold to the great loss of the grower.

Drilling of Grain.

We have received various letters concerning the drilling of wheat, barley, and oats, on light soils; and are glad to learn, that this mode of culture is increasing in the southern counties of Scotland, and the northern ones of England. Such information is highly agreeable, because it shews that a superior attention to good farming, is coming fast into general practice; for drilling can never be practised to any useful purpose, where husbandry remains in an imperfect state. We do not entertain a doubt, but that drilling may be eminently beneficial in several districts; because it allows the ground to be regularly seeded, and at a proper depth, besides furnishing an opportunity of extirpating annual weeds, which are the bane of good husbandry on light soils; but still we see no cause to change the sentiments long held by us upon this subject, or to think, for a moment, that the numerous varieties of soil incumbent on wet or retentive bottoms, can ever be successfully cultivated in any other way than according to the ancient broad cast system. What is called the new husbandry, under the physical circumstances of the British isles, may be partially adopted, but can never become the established and general practice.

Turnips, Potatoes, and young Grasses.

Both turnips and potatoes suffered this year. The former root failed less or more in every district, the latter only partially. We believe that in no one year, since turnips formed an article of field culture in Britain, has such a general failure been experienced. Even where a kind of crop has been got, we suspect that the nutritive substance thereof will be found inferior to the ordinary run of crops. Indeed with caterpillars swarming on every leaf, and with worms piercing the bulb or root in every direction, the juice and strength must neces-

sarily have been sucked and consumed by these merciless intruders. Grass seeds have in many districts completely failed to the great loss of the occupier, both on account of the expence laid out in purchasing them, and the consequent derangement of his subsequent operations.

Thirlage Bill.

In putting the act of Parliament for commuting thirlage into execution, we are informed that a curious and unprecedented decision was lately given in a northern county, which, according to the nature of our information, deserves to be noticed, in order that similar mistakes may not be committed in other counties, in the execution of this useful and salutary measure. We understand, that the jury first divided on the question, Whether the mill-owner should be indemnified for services performed by the party thirled, such as clearing the dam, bringing home millstones, &c.? and that the affirmative was carried only by a majority of one vote. Here the majority were certainly right; though, on what ground the minority opposed such indemnification, we are at a loss to discover. But, in the general verdict, if we are correctly informed, it would appear that the majority were completely in an error, when they gave *the full value* of all multures, services, and dues whatsoever, without making the least deduction, in consideration of the mill having been relieved of the actual labour of manufacturing the grain, for which these multures and dues were claimed; as, by doing so, they gave more than a just equivalent for the removal of the thirlage. This is the substance of the case, as communicated to us; and if the circumstances be correctly stated, furnishes a proof that even juries may go wrong. We shall, however, suspend our opinion, before the subject is investigated by our correspondent in the district alluded to, who is instructed to make particular enquiries.

Upon the whole, the state of husbandry in Britain, at the conclusion of the year 1803, cannot, in its great and leading features, be considered as materially altered by any circumstance or event which has occurred in the course of it. The trade in grain (the greatest in Britain) has not varied considerably; but, in that of live stock, which may perhaps be ranked as second to grain, a great depression has, within a few months, taken place. We have considered this depression as of a temporary nature, and briefly condescended upon the leading causes which produced it. Other branches of rural economies have also been cursorily noticed, and that

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in such a way, as we trust will convey some satisfaction to our readers. The imperfectness of this retrospective view, will, however, be candidly excused by liberal minded persons. Such will reflect upon the manifold difficulties attending a first attempt,—upon the importance of the subjects discussed,—upon the deficiency of materials for completing any thing like a correct picture of British husbandry,—and upon the extent of investigation requisite, before general conclusions can safely be drawn, from a number of detached local facts. With persons who reflect in this manner, we stand a small chance of being severely condemned; and to those of a different character, we would say, in the words of an ancient poet,

'——— Si quid novisti rectius istis,
'Candidus imperti: Si non his utere mecum.'

We shall now present several local sketches, obligingly furnished by correspondents, to whom our most grateful acknowledgments are due. By their aid we are enabled to lay before the public a more correct view of the husbandry of Britain, than could have been accomplished under the most active individual exertion. At the same time, we must regret, that the confined limits of the Supplement restrained us from presenting many articles of considerable importance, besides laying us under the necessity of abridging others; for which liberties we earnestly request that our friends will kindly excuse us.

SCOTLAND.

SCOTLAND.

Caithness.

The measures which were in contemplation, for promoting the prosperity of this remote district, have been considerably checked by the renewal of hostilities with France, which so unexpectedly took place at the commencement of this year. A state of war must in general be unfavourable to all sorts of improvement. The difficulty in obtaining capital to carry them on with spirit; the scarcity of hands, owing to the demands of the army and navy; and, in remote situations, the trouble attending the procuring seeds and other articles by sea, from distant parts of the country, and skilful labourers, where they are necessary for the introduction of any new system, are all hostile to active and great exertions. But if that was the case on former occasions, it is still more so at present, when we are threatened with all the horrors of conquest, by the most powerful state that has arisen in modern times; and when people in general seem more inclined to consider what are the best means of preserving what they have got, than of acquiring more. It were much to be regretted, however, if such a spirit were to become general. If that should be the case, this country would soon become unable to persevere in so arduous a contest. The best foundation of its strength is the cultivation and produce of its own soil, and if, in addition to the other calamities of war, we were to be under the necessity of depending on foreign nations for any large proportion of our subsistence at a time when commerce must necessarily be considerably diminished, our wealth would quickly disappear, and our distresses would accumulate to a height which might produce the most disastrous consequences. This is a subject which, it is to be hoped, will soon attract the attention of parliament, and that some system will be adopted for the purpose of furnishing the landed and the farming interests, with the means of carrying on the cultivation and improvement of the country, if possible with greater energy than ever, as the best mode of enabling us to prosecute the present war, with additional spirit and success.

In addition to the calamities of war, the last season also, was, on the whole, highly unfavourable to agricultural improvements. The spring and the beginning of summer were cold and ungenial; and though the months of July and August were dry, and consequently well calculated for the operation of burning, yet from the want of rain at that critical period of the season, the crop of this year has but little straw, and though the quality of the grain is wholesome, yet it is hardly equal in quantity to the average produce of Caithness. This is the more to be lamented, as the preceding crop turned out a worse one than any remembered in that county for some years.

Inverness

Inverness-shire.

Mr Telford, engineer, spent a great part of the summer in taking the levels and lining of the great Caledonian Canal, from Fort William to Inverness, a distance of sixty miles, only twenty of which require cutting, the remainder being fresh water lochs, and an arm of the sea. There are a great number of men already employed in the quarrying of stones, and in the erecting of wooden barracks for the work people; but no general commencement of the undertaking will take place till the beginning of next spring, when it certainly will proceed with vigour. Mr Telford's estimate of the expence of roads and bridges proposed to be executed in the Highland districts, amounts to L.192,000, whereof it is intended to raise one half by an assessment upon the landed proprietors of the different counties in which such roads and bridges are respectively situated, and the other half government mean to supply. The gentlemen of this county (a few excepted) have already come forward with a voluntary offer of their share of the expence; and if those, who have not consented, refuse to meet the liberal views of government, an application will be made to parliament for power to assess them in their several proportions. The general advantages to the north of Scotland, and in particular to this county, that must result from the public works now in contemplation, ought to silence all opposition, and cause the proceedings, in every stage, to be forwarded with the greatest diligence and alacrity.

I formerly mentioned that the Caledonian canal will run through my farm, fully more than a mile, and on that account I must suffer considerably. Besides, it approaches within 250 yards of the front of my house, and will cut through several of my fields. I hardly think it possible that a suitable compensation can be awarded to me; for as tenant the injury done will be great in the first instance, though eventually the proprietor may be amply benefited.

Morayshire.

Observing, with much satisfaction, in your valuable miscellany, an anxious desire to promote and animate that spirit of improvement in Agriculture and Rural Economy which is so rapidly spreading in all directions, and hoping that it will be agreeable to you to receive some account of the improvements in Morayshire lately undertaken, and of those soon intended, I send you the following sketch.

The most prominent is that by which our communication with the eastern and southern divisions of the kingdom will at *all times* be kept open—A Bridge over the Spey at Fochabers. Whether this object be viewed as the only link wanted to complete the vast chain of bridges from Cornwall to Inverness, and therefore truly a national one;—or, merely as a local accommodation to the agriculture, commerce, and comfort of this particular district, it is peculiarly interesting. The facility which this bridge will afford to the anxious traveller, to the mail, and even to the conveyance of troops and military stores

stores, which have often been interrupted for days by the magnitude and rapidity of the river in floods, will be gratefully felt; while essential benefits must result from it to this county in particular by the ready admission of that valuable, and much wanted article, lime, which abounds in the neighbouring county of Banff; from the immediate improvement of a large tract of level moor in the vicinity of the bridge on which there is an intention to establish a village; and especially from the inducement it holds out to the great dealers in cattle, to extend the tour of their purchases to this quarter, where there are always considerable quantities of stock, and which the hazardous and vexatious interruptions occasioned by fording the Spey, have hitherto tended to prevent.

It cannot fail to give pleasure to every liberal mind, to know that the chief obstacle to this great work has been happily overcome during this summer, by the erection of the three principal Piers which are now quite ready to receive the arches. The expence of this bridge (from 12 to 14000l.) is to be defrayed by Government aid, by public subscriptions, and by the liberality of that noble family on whose property it stands. When it is finished his Grace of Gordon will enjoy the gratifying reflection, that in his own time he has begun and completed a magnificent castle, an elegant church, and a most useful bridge.

Another important improvement, and intimately connected with the preceding, is to be found in the unanimous resolution of our last county meeting, to apply for an act of Parliament for making *turnpike* the great leading post road, and our principal cross roads. From the talents and persevering zeal of the committee, to whom this important matter is entrusted, every hope may be indulged of its effectual and speedy accomplishment. The advantages arising to agriculture, to trade, to safe and expeditious travelling from the introduction of *Turnpike roads* has been so practically demonstrated by their adoption in every part of the island, that no better argument, (tho' many must always arise out of local circumstances) nor indeed any other, is necessary to demonstrate their utility. This line of Turnpike, by continuing that now forming in the counties of Aberdeen and Banff, will extend the public accommodation in this way from the southern to nearly the northern extremity of the kingdom; and we cannot doubt but it will be taken up and acted on by the counties of Inverness and Ross, with all that energy and spirit which characterizes them in every public undertaking.

A substantial and very handsome bridge of two arches across the Lossie, at the east end of Elgin and near the Cathedral, which was founded in June last, is now compleated. By it the communication with our sea-port, Lossiemouth, and with the eastern part of the county, formerly often interrupted by floods in the river, is secured at all times. While this essential accommodation is provided, the approach to the town in this direction, presents a most picturesque and richly varied landscape. The work has been defrayed by public subscriptions, and executed by Mr Burns.

A few spirited farmers have suggested the idea, and are ready to carry

carry it into execution, of making a Navigable Canal from Lossiemouth to within one mile of the market-cross of Elgin. The advantages proposed by this undertaking are—Draining the very extensive loch of Spynie, which contains a surface of 1500 acres at least, of the finest clay and loamy lands, that would produce the richest crops for many years without manure;—and also a material saving in the carriage of heavy articles, by supplying the county on the line of the Canal, and the town of Elgin, with lime, coals, and goods, and bringing from thence for export, at Lossiemouth, corn and such manufactures as the county produces. The natural advantages, which the proposed line possesses, are so peculiar and so great that, tho' the extreme distance be nearly six miles, it is calculated that the work would only cost 2000l. How much then is it to be wished that the heritors, thro' whose property it must pass, may hold forth that encouragement which the enterprise and spirit of the proposers deserve and require.

While I am endeavouring to give your readers some idea of those attempts at public improvement in this county, allow me to mention, with much respect, the conduct of Joseph King, of Newmiln, Esq. proprietor of some valuable lands in the neighbourhood of Elgin. This gentleman, on coming lately to the succession of a family estate, and finding part of it had been for time immemorial, subject to the inroads of the river Lossie, without any attempt being made to resist them, immediately built a water dyke in the most substantial and best manner, and of no less extent than 2300 ells, which, tho' done at a very considerable expence, has not only repaid the interest annually, but will return all the money expended, in a few years. He has also led the way in the embarkment and improvement of that large run-ridge field called the *Auchtenpart Lands*, the division of which was noticed in your 9th No. He has there thrown up 1000 ells of a very broad well finished water dyke that completely secures his proportion from the Lossie, and, by opening a new passage for the river and covering what was formerly its bed with 18 inches of rich loamy mould from an adjoining field, he has gained several acres, which will amply repay all his outlay in a short period. The pleasure, the security, and the advantages which he derives from spirited and judicious improvements it is hoped will stimulate others "to go and do likewise."

Before quitting the subject of this communication, and as in some degree connected with it, altho' I fear your patience is already exhausted, I cannot omit noticing, with much praise and with the sincerest wishes for its success, an attempt by the Morayshire Farmer Club to carry into effect a scheme of very considerable extent, and surely of the most benevolent nature.—*A Fund for the benefit of Widows, Orphans, and decayed members, on a liberal plan.* The draft of Rules, and Regulations, with calculations of the premiums and annuities, is now printed and in circulation. Although the idea originated with that society, it is by no means intended to be confined to them; respectable persons of every profession are readily admitted. The annuities are such as to make it an object worthy the attention

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of all ranks, and the calculations having been made by William Morgan, Esq. nephew of the late celebrated Dr Price, and perhaps at this moment, the most eminent calculator in Europe, gives an auction and an authority to this scheme which few others possess.

East Lothian.

The weather, during the year 1803, was unfavourable in many respects to the husbandry of this county, but in others it proved equally propitious. From the last week of February to the same time of May, a single shower hardly fell, consequently, many fields of spring grain were stunted at the outset. In the first and second weeks of June, some genial rains, though not to a great extent, were received, but their effect was prevented by high gales of wind, which immediately followed. Little moisture dropped in July, and though a larger supply was furnished in the beginning of the subsequent month, yet from the ground being completely dried beforehand, less benefit was derived than otherwise might have been expected.

To persons intimately acquainted with the general nature of East Lothian soils, it will readily appear, that a drought of such uncommon length and severity, would operate upon the different districts of the county in very different ways; and that land, recently turned up, would, in every case, be much more injured than where the preparations had been made at an earlier period. A considerable part of the soil is of a light gravelly nature, or, what is nearly the same thing, is incumbent on a free and open bottom. Fields of this description, except where winter wheat had been sown, suffered materially; and upon dry sands the crops were nearly burnt up by the scorching rays of the July sun. The inland parts, where clay and loam of different varieties predominate, were only partially injured, though the several crops were, even in these situations, of much less bulk than those customarily produced.

Notwithsanding these adverse circumstances, there is good reason to believe, that, taking the county in the aggregate, it will be finally ascertained, that the quantity of grain produced in 1803 approximates to an average. The diversity of soil already noticed, renders weather, confessedly injurious to one district, beneficial to others; and when it is considered, that a large portion of the arable land is annually devoted to the growth of wheat, which is rarely injured by dry weather, perhaps it will be allowed, that the husbandmen of this county have not much cause to complain of a bad season. Individuals may have suffered considerably, but an equal benefit was gained by others situated under different circumstances. Those who deal largely in the grass and turnip husbandry undoubtedly sustained much loss; indeed over the whole coast side district the season proved less or more adverse to the occupiers.

A concise abstract of the advantages and disadvantages accompanying this uncommon season shall now be given. This of course must be restricted to general circumstances, seeing that to descend to minute particulars would be an impracticable attempt.

Advantages

Advantages.

Every furrow given to the ground from the commencement of spring seed to the present day, contributed to promote the objects for which ploughing is bestowed, and neither time nor labour were for one day lost or misapplied. The spring seeds were completely harrowed, with some trifling exceptions of barley after turnips, which were late of being removed. The fallows were sufficiently wrought, and generally received more furrows than usual. The turnip fields were better cleaned, and at less expence than generally occurs. Every branch of harvest work, from the cutting of the crop, to the safe ingathering thereof, was performed expeditiously, and at less cost than in seasons of a different description, though wages at the same time were high. The sowing of wheat was finished in good time, and to a greater extent than ever known; and field labour of every kind is far advanced.

Disadvantages.

Several barley fields could not be got sown in due time, which occasioned an imperfect braird, and an unequal crop. Hay proved universally very light, not an hundred stone per acre, in general cases; and where eaten down in spring, was hardly worth the cutting. The pastures continued miserably bare throughout the year. Many farmers were in want of water for the use of their live stock. Turnips worse than ever known, few fields being equal to half a crop, and in numerous instances they were ploughed down. Oats severely injured by caterpillars, and worse in quality by many per cent. than customary. Beans upon all light soils so bad as to yield little more than the seed sown. Young grasses planted badly, and in various fields failed entirely. Fodder generally scarce, and the stack yards in every quarter fully one fourth less in size than those of the preceding year.

Such it is believed is a tolerably correct picture of East Lothian husbandry for the year 1803, and perhaps it may be justly inferred, that any loss sustained was abundantly compensated by the superior opportunities enjoyed of executing every branch of rural work with regularity and perfectness. The soils of the county are so different, that no season, which answers in every respect for one description, will suit those of an opposite character. In few years however have the distinguishing lines been so clearly marked out as in the present, except perhaps in the fatal 1799, when the consequences were similar, though directly opposite. The coast side lands flourished in that year, whilst the internal parts of the county were drowned by moisture and starved by cold.

Though lime was used this year to a considerable extent, yet it is a dubious point whether the quantity will equal that of the preceding one. A general opinion was at one time entertained, that, as the arable land of the county had been limed at a former period, it could not be benefited by a repetition of the article; but this being now refuted

futed by positive facts, calcareous manure has been latterly applied very extensively. Indeed lime may safely be considered as the basis of East Lothian husbandry, rarely neglecting to operate, provided a full dose has been bestowed.

It is in contemplation to introduce a new road bill for this county into the present session of parliament, though the act passed in 1793, is not half expired. Various reasons are assigned for this premature step, but it is believed the true one is, to get the sanction of parliament for granting a considerable sum out of the funds of this county, in aid of the new bridge at Musselburgh in the conterminous county. It was originally intended to draw pontage there, but, in consequence of this grant, none will be levied. Travellers, to be sure, must admire the generosity of this county in subjecting itself to a heavy expence, in order that they may pass free, for the breadth and length of the measure is nothing more than that the good people of East Lothian are to pay pontage for all those who travel from the most distant parts of the island to the Scotch metropolis. It is also proposed to place a number of the bye roads under the turnpike system; a measure probably very necessary, though it must excite surprise that the most public cross road in the county, a road leading from one royal burgh to another, and presently in a bad state of repair, is not included.

A very complete thrashing machine of extensive powers, to be worked by water, has lately been erected upon the farm of Beil Grange, in the natural possession of Mr Hamilton Nisbet of Dirleton and Beil. We rejoice when gentlemen of affluent fortunes display attention to such matters, and can safely declare, that Mr N. carries on every branch of his numerous rural undertakings with vigour and judgment. Gentlemen of landed property ought either to farm well, or they ought not to farm at all.

Ayrshire.

Taking crop 1803 throughout the whole county, I believe it may be termed a good one, that is, a crop equal to an average of years taken together. Since the beginning of June we have had one of the finest seasons ever remembered; dry weather in abundance, with such alternate rains as were perfectly sufficient for promoting and keeping up vegetation, by which means the grain was completely filled and ripened; and if sloth or carelessness did not intervene, it was next to impossible that it could be lost in harvesting. The extreme cold and unfavourable weather in April, and the whole of May, chilling the seed and young rising plants, rendered the crop thinner than usual; but the superior quality will probably supply that deficiency. In some grounds where the cold, frost, sleet, and hail did not entirely kill the plants, they retarded their growth till the more favourable weather in June succeeded. Hence an after-growth sprung up, which in many places rendered the harvesting very tedious and irregular. It was no uncommon thing to see several patches of green and half ripe corn stand for two or three weeks in the same field, after that the other

ther parts had been cut down and carried off. But with this little disadvantage, the counties of Ayr, Wigton, Kircudbright and Dumfries, it is believed, have more abundant crops, and of better quality, at least, of Oats, than most other parts of Britain, this season, can boast of; and the inhabitants have much reason 'to praise the Lord for his goodness' to them in this respect, which will help to compensate for a sore evil with which they have been visited.

A considerable part of the shire of Ayr, particularly Carrick, and a great proportion of the three counties last mentioned, being breeding and grasing districts, their success and general prosperity depend upon the value and ready sale of their cattle and sheep, which, for the most part, are driven to the English markets. The farmers stock was bought in at the end of the last season, and beginning of this, at extravagant high prices, and the *keep* in England having failed, manufactures being in a great measure at a stand, and the bankers finding it necessary to contract their credit, the value of live stock has greatly diminished. Sales are at a stand; numerous bankruptcies among the chief cattle dealers have ensued, and spread distress and desolation among many worthy and respectable families.

Experience ought to teach wisdom; and it is to be hoped, that this calamity will shew the folly of too much *speculation* in an article which depends upon the seasons, which no human sagacity can calculate; and upon trade and manufactures, which a breath of wind can c[illegible]rict.

Tweedale.

Through the greater part of this county, the summer drought was felt severely, and the pastures were thereby much curtailed. About the latter end of July, and first of August, milch cows were so stinted in their pasture, that through the night, and at mid day, they ate last years straw in the house as frankly as they would have done at Christmas, with a storm of snow upon the ground. The uncommon hail showers, which fell on the 20th of July, did much damage, by breaking sky-lights, perforating the leaves of turnips, and tearing the leaves from, or cutting clear over the stems of the potatoes; fortunately in the cultivated part of the county, its tract was confined to a narrow range of about one mile in length, and four in breadth, across the water heads of Linton and Newland parishes.

The effect of the cold spring weather, was more discernable upon Potatoes than upon any other crop; and in the low ground this esculent was materially damaged by the early autumn frost. In the night betwixt the 20th and 21st of August, though the frost was not so severe as to cause perceptible hurt to the corn crops, yet the Potatoes suffered considerably. They are not thoroughly ripened this season, and probably may be rated at one third below an average crop. The Tweedale species, (as they are called here) which is a large round potatoe, with the eyes deeply indented, are by far the best crop; extending in some cases by computation of cart loads, to

fifty bolls, of about four cwt. each, per Scotch acre. It has been remarked as a singularity, this fall, that the ash leaves remained longest green, though generally the first in falling; the spring frosts had, in fact, nipped their buds when beginning to burst, so that they had to bud anew, and of course their leaves were younger and more vigorous; and though the harvest frost sufficed to wither the potatoe leaves, it had not been sufficiently hard to reach the ash leaf (susceptible as it has been remarked to be) from its elevated situation, and particularly from its being *in a more vigorous state of growth*; in which respect its susceptibility of frost biting, would seem to follow the analogy of that of Oats, as noticed in the fifteenth number, and elsewhere.

The turnip crop, the seed of which is here sown early, to compensate by allowance of longer time for growth, for backwardness of climate, had made very little progress till the rains in September arrived. Though there were few complaints of a deficiency of plants, yet they seemed to become stunted by the drought, few being found above the size of one's fist. The leaves had assumed a yellow appearance, interpreted by some into *ripeness*; whence it was concluded, that no further increase of bulb could be expected, the plant being supposed to have reached maturity. This *Munchausenian* analogic reasoning has, however, been eventually contradicted by the facts; for after rain was received, the fields gradually assumed a living, green appearance, and the bulbs have since increased at least to double, if not triple size. In short, the crop of this root will, every where in this county, turn out equal to an average one; and by furnishing our flocks with food longer than first expected, may contribute to lessen the present market glut, and provide supplies at a period when the failure in other districts may occasion a deficiency.

The prices of Scotch beer and barley, must depend on what becomes of the malt tax. Pray do you think that there is any probability of our arriving at that substitutionating dexterity in converting one species of grain so completely to the uses to which a different species is at present exclusively applied, as that the prices shall completely amalgamate? or shall the prices of each continue entirely to depend upon the quantity in which it is individually produced in each season?

Mid Lothian.

The only thing that occurs as novel in husbandry, is a practice lately adopted by a few farmers in this county, in the management of wheat land. The wheat is sown broadcast, and after giving the ground a single, or at most a double time of the harrows, it is immediately ridged up into drills, like turnips. Some do it by giving every drill a round of the plough, others at once by the plough, with a double mould board, and thus it remains all winter. The ostensible advantages are said to be, that it keeps the land completely dry, and leaves a rougher mould on the surface.

To speculate either upon the advantages or disadvantages of this practice would be premature, but it is pretty evident, that, upon certain soils, and in many seasons, it would be inadmissible, as it would poach and work the land into a kind of paste.

It

It is generally said, that money is the sinews of war; the same may be asserted, with equal propriety, when applied to the improvement and melioration of the soil. The quantity of lime purchased from the kilns in this neighbourhood in one season, is generally in proportion to the quantity of money in the pockets of the farmers; and it can be foretold, with tolerable accuracy, whether the sale is to be smart or dull by the nature of the crops and markets of the preceding year. The sales of the bygone season were a good deal below an average, owing to the prices of last year being so low, unless with farmers of considerable capital.

An abominable practice was introduced here four years since, by one of our lime proprietors, who, from downright greed, took the works into her own hand: Finding it a losing concern, various modes were resorted to for making it a better one, and at last it was resolved to sell only by weight, allowing $4\frac{1}{2}$ cwt. to be a boll of barley measure. But this is not the worst of it, having a coal work for the use of burning lime only, the patriotic resolution was formed, of giving no coals for the other lime works, unless the owners would come into the same measures.

Thus a combination was formed to sell only by weight: And this reprehensible practice calls loudly for animadversion and redress. The price is $5\frac{1}{2}$d per cwt. but it is not the price, but the unhallowed practice of compelling people to give a premium for rendering the article less perfect, that is complained of; it being self evident that the worse the lime stone is burnt, it will weigh the heavier; neither has the purchaser any proper check, as few farm servants understand or care much about the matter. Thus a great loss is sustained by the public, both in respect of money and carriage, while the full benefit of the article is withheld from the land.

ACCOUNT of WHEAT sold in Haddington Market, for ready Money, from the 3d of December, 1802, to 25th November, 1803, both days inclusive.

Dates. 1802.	Bolls.	Proceeds.	Weekly Average.	Monthly Average.
Dec. 3.	493	L. 664 0 0	L. 1 6 $11\frac{2}{11}$	
10.	214	308 19 0	1 8 $11\frac{5}{11}$	
17.	297	442 6 0	1 9 $9\frac{4}{11}$	
24.	394	568 8 6	1 8 $10\frac{4}{11}$	
31.	413	554 15 0	1 6 $10\frac{4}{11}$	
	1811	L. 2538 8 6		L. 1 8 $0\frac{4}{11}$
1803.				
Jan. 7.	408	L. 555 17 0	L. 1 7 $2\frac{1}{11}$	
14.	397	511 3 6	1 5 9	
21.	475	617 8 0	1 5 $11\frac{1}{11}$	
28.	398	506 1 1	1 5 $8\frac{7}{11}$	
	1678	L. 2190 9 6		L. 1 6 $1\frac{3}{11}$

Dates. 1803.	Bolls.	Proceeds.	Weekly Average.	Monthly Average.
Feb. 4.	451	L. 577 16 6	L. 1 5 $7\frac{5}{17}$	
11.	396	488 6 9	1 4 $7\frac{11}{17}$	
18.	292	357 7 9	1 4 $5\frac{8}{17}$	
25.	249	311 13 0	1 5 $0\frac{4}{17}$	
	1388	L. 1735 4 0		L. 1 5 0
Mar. 4.	303	L. 384 11 9	L. 1 5 $4\frac{7}{17}$	
11.	346	444 5 0	1 5 $8\frac{1}{17}$	
18.	325	444 15 9	1 7 $4\frac{1}{17}$	
25.	209	295 10 0	1 8 $3\frac{3}{17}$	
	1183	L. 1569 2 6		L. 1 6 $6\frac{4}{17}$
April 1.	202	L. 278 15 6	L. 1 7 $7\frac{6}{17}$	
8.	324	449 14 6	1 7 $9\frac{1}{17}$	
15.	279	390 18 0	1 8 $0\frac{3}{17}$	
22.	342	477 1 0	1 7 $10\frac{9}{17}$	
29.	346	477 12 3	1 7 $7\frac{1}{17}$	
	1493	L. 2074 1 3		L. 1 7 $9\frac{4}{17}$
May 6.	285	L. 396 3 6	L. 1 7 $9\frac{7}{17}$	
13.	478	619 6 0	1 5 $10\frac{11}{17}$	
20.	351	510 10 6	1 9 1	
27.	432	644 18 0	1 9 $10\frac{3}{17}$	
	1546	L. 2170 18 0		L. 1 8 4
June 3.	317	L. 453 7 3	L. 1 8 $7\frac{2}{17}$	
10.	332	472 10 0	1 8 $5\frac{6}{17}$	
17.	301	442 7 3	1 9 $4\frac{8}{17}$	
24.	457	692 14 0	1 10 $3\frac{9}{17}$	
	1407	L. 2060 18 6		L. 1 9 $3\frac{6}{17}$
July 1.	439	L. 673 18 0	L. 1 10 $8\frac{5}{17}$	
8.	343	541 10 3	1 11 $6\frac{10}{17}$	
15.	397	608 10 0	1 10 $7\frac{11}{17}$	
22.	282	446 13 6	1 11 $8\frac{1}{17}$	
29.	375	579 12 6	1 10 $10\frac{11}{17}$	
	1836	L. 2850 4 3		L. 1 11 $0\frac{6}{17}$

Dates 1803.	Bolls.	Proceeds.	Weekly Average.	Monthly Average.
Aug. 5.	322	L. 463 9 0	L. 1 8 $9\frac{5}{12}$	
12.	366	539 18 6	1 9 6	
19.	341	523 19 6	1 10 $8\frac{3}{12}$	
26.	259	392 6 9	1 10 $3\frac{6}{12}$	
	1288	L. 1919 13 9		L. 1 9 $9\frac{8}{12}$
Sept. 2.	337	L. 490 18 3	L. 1 9 $1\frac{3}{12}$	
9.	482	679 2 0	1 8 $2\frac{1}{12}$	
16.	544	750 7 0	1 7 7	
23.	525	732 12 0	1 7 $10\frac{10}{12}$	
30.	481	673 7 6	1 7 $11\frac{3}{12}$	
	2369	L. 3326 6 9		L. 1 8 $0\frac{11}{12}$
Oct. 7.	507	L. 687 4 6	L. 1 7 $1\frac{1}{12}$	
14.	502	698 4 0	1 7 $9\frac{9}{12}$	
21.	455	617 2 9	1 7 $1\frac{6}{12}$	
28.	621	819 17 3	1 6 $4\frac{10}{12}$	
	2085	L. 2822 8 6		L. 1 7 $0\frac{11}{12}$
Nov. 4.	607	L. 801 4 6	L. 1 6 $4\frac{9}{12}$	
11.	731	953 12 6	1 6 $1\frac{1}{12}$	
18.	705	914 5 3	1 5 $11\frac{1}{12}$	
25.	500	663 19 6	1 6 $6\frac{8}{12}$	
	2543	L. 3333 1 9		L. 1 6 $2\frac{3}{12}$

Dates.	Monthly Quantity. Bolls.	Monthly Produce.	Annual Average.
December, -	1811	L. 2538 8 6	
January, -	1678	2190 9 6	
February, -	1388	1735 4 0	
March, -	1183	1569 2 6	
April, -	1493	2074 1 3	
May, -	1546	2170 18 0	
June, -	1407	2060 18 6	
July, -	1836	2850 4 3	
August, -	1288	1919 13 9	
September, -	2369	3326 6 9	
October, -	2085	2822 8 6	
November, -	2543	3333 1 9	
	20627	L. 28590 17 3	L. 1 7 $8\frac{7}{12}$

Attested by ARCH. TODRICK, Clerk.

N. B. The above relates only to the quantity of wheat actually presented in the market; but does not include what is there sold by sample, which is very considerable.

ENGLAND.

Northumberland.

THE year 1803 has been rather singular in respect to weather, so far as agriculture is affected by it. The frost set in early in January, and continued until the beginning of March: this frost was for some purposes very convenient, as leading manure, &c. but being accompanied with little snow, it proved very prejudicial to the winter wheats. Ever-green trees and shrubs suffered materially from the effects of some of these frosts; many plantations of firs were turned brown on the sides exposed to the east and south, and had all the appearance of having suffered by fire. The frost ceased about the 13th of March, and was succeeded by remarkable fine, fresh, dry weather, and the spring seed was never put in under more favourable circumstances. The weather continued dry and cold through April, May, and beginning of June, and so far checked vegetation that the hay crops were very short, and the pastures seldom seen barer; some fine rains on the 9th, 10th, and 11th of June were of use to the grass lands, and particularly to the turnips sown about that period; but the intense drought which immediately succeeded, and continued through the summer, disappointed the rational hopes which the cultivator had entertained from the uncommon seed time he had been favoured with.

Upon dry soils, the drought prevented oats and barley from getting to half their usual length, and in many places they were arrested in the shot-blade, and, on the whole, are below an average crop. Beans from the same cause were under a similar predicament. One effect of this long continued drought is, that the quality of all kinds of grain is good, particularly wheat, there being few defective grains, of course it gives well to the bushel, and the samples were never shewn in greater perfection.

The new variety of oats, called the potatoe oat, has been cultivated here with great avidity for 3 or 4 years; the crop of this year, I think, will rather check their cultivation on so extensive a scale, as it appears their produce, upon poor soils, is not so great as if those lands had been sown with Blainsley or Angus oats.

The cultivation of Ruta Baga, seems to be gaining ground in this district, as it appears there is much more land covered with them this year than was ever observed before; the great objection hitherto has been their inferior size to the common turnip, but when it is considered, that little more than half the quantity will be eaten by sheep, than of common turnip, the objection is removed. The property of bearing transplantation, and their superior hardiness in resisting frost, are also considerable recommendations, as well as their being capable of being put into heaps, covered with straw and earth, and kept in that state through the winter. I have kept some in this mode from

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the beginning of January to the middle of May, in as sound and perfect a state as could be wished.

I am happy to add, that the practice of drilling beans at 30 inches intervals, is making great progress in various districts, which I consider as a material improvement; and the drilling of corn crops, particularly wheat, at 10½, or 12 inches intervals is also becoming more extensively practised; the facility with which the intervals are horse and hand hoed, completely eradicate wild oats, runch, or wild mustard, and every other species of annual weeds in a few years: there is also a great advantage by having the lands so finely pulverized by these hoeings, for the clover and grass seeds, which are covered by a new horse hoe harrow, that harrows the intervals without touching the corn.

The markets, through the whole of this year, have fluctuated very little. Corn has been rather below par, particularly barley: for live stock there was a depression of prices in September, owing to the effects of the drought, but they soon after got up to their former prices.

This year will be remembered by many farmers for the losses sustained by the rot in sheep, though the disease was occasioned by the wet weather in the preceding autumn; considerable numbers of sheep of this description have been sold at half their value, and have tended to keep down the price of fed mutton for several weeks past.

Yorkshire.

In a retrospect of the different periods of the present expiring year, we cannot help observing, that the state of the weather, though at some periods, and in some places very fine, and unusually encouraging to agricultural pursuits, yet, that on the whole, the result has been singularly, and extremely discouraging. A more forward and favourable spring, from the lambing season to the commencement of the summer months, was scarcely ever experienced; but the severe drought that ensued, and which continued here, almost without the slightest intermission of a shower, till the latter end of Autumn, produced such a defalcation of the ordinary resources for cattle, both in regard to pasture, fog, turnips, &c. that had not the crop of hay been tolerable in burden, and excellent in quality, the greatest distress must inevitably have been the consequence. Although the pleasing freshness of the grasses, with the much improved growth of the turnips, plainly progressive, till the late, and present hard frosts, forbid the farmer to despair, yet the general inconvenience has been great and trying. Much hay has already been consumed, and though, but in few instances, these disappointments point to improvement in modes of management, yet some of the more intelligent farmers are turning their attention to the culture of Lucerne for soiling, &c. than which, probably nothing better adapted to the purpose in all seasons will be discovered in our time.

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In these districts the general practice of husbandry on dry soils is directed towards the usual rotation of, 1. turnips, broadcast; 2. barley; 3. clover, or beans and pease; 4. wheat, or rye if too sandy and dry for wheat: and farms, not larger than one or two hundred acres, are mostly devoted to the plough for that rotation, with not more than ten or twenty acres at most, under meadow or pasture, besides seeds, &c. insomuch, that it is matter of perfect wonder and astonishment to men of reflection, how the pompous teams of 5 or 6 fat, heavy draught horses, half worked, and maintained at an expence, probably, of not less than 30l. per horse per annum, can possibly be supported on such small parcels of land, beside the heavy demands on the other produce for rent, wages, taxes, &c. &c. In short, nothing but downright necessity will ever induce the farmers to use that far more useful and profitable animal, the ox, for all the petty labours of such small farms.

On the clay soils, the practice is to work them for the rotation of, 1. fallow; 2. wheat, or barley; 3. beans, or clover; 4. wheat, or oats. But as the wheat crops are scarcely ever mown, about a ton of straw per acre being left in stubble, and as the soiling of horses is little practised, much time and labour are lost by running up and down for manure, to recruit the exhausted lands; all which might be spared, as is well shewn by the example of some few farmers, who carefully reap every atom of straw, and by soiling horses, and other cattle, convert the whole of the produce, into an abundant supply of the best manure in existence: Yet, strange to say, the benefits of this system, [illegible] and so implicitly connected with the keeping of horses for draught, cannot at present be comprehended by one tenth of the practitioners of this useful art.

In addition to the discouragements above alluded to, and which, as presented by nature herself, it behoves the rustic to meet with becoming resignation and patience, the political hemisphere has assumed an aspect which almost bids fair, in its consequences on the husbandman, to paralyse his laborious and honest endeavours to discharge his numerous and constantly encreasing obligations. The present reduced and reducing prices of almost every article of produce, unfortunately concurring with an increased rate of every species of out-payment for wages, taxes, &c. (particularly that most unreasonable, unseasonable, and destructive impost on malt, which, like a two edged sword, cuts the farmer, both in produce and consumption,) bear with such unexampled weight and rigour on every point of the cultivator's efforts and economy, that it may safely be concluded, on a fair retrospect of the whole period, 'that the agriculture of this realm has received a shock, and that its consequent movements are of the retrograde order.'

Norfolk.

To the British Speculator, three principal objects are offered for his election,—Commerce, Manufactures, and Agriculture; and as every

every man is ſaid to exhibit two characters, ſo theſe objects muſt be conſidered as ſtanding in the ſame predicament. They have their bright and their gloomy aſpects, their lights and their ſhades, conſequently their advocates and their enemies. Thus commerce, to thoſe who obſerve its bright ſide, only appears all amiable. It is the chain that connects the moſt diſtant parts of the habitable world, diffuſing the luxuries, the elegancies, and the neceſſaries of life; enlarges our ideas, meliorates and improves our ſocial virtues, ſmooths thoſe aſperities, and rubs off thoſe unbecoming prejudices which adhere through every period, to beings who never travel out of the view of their own chimnies, or ever wander with the intelligent traveller, through thoſe ſcenes which his pencil or his pen happily and forcibly deſcribe. Commerce introduces (continues its advocate,) an infinite number of raw materials, to be wrought up by Britiſh ingenuity, for home conſumption or exportation; thus affording employment for thouſands. In ſhort, it enriches individuals, ſtrengthens the nerves and ſinews of the ſtate, and protects, with its wooden walls, the deareſt rights and intereſts of ſociety.

Another perſon, however, may obſerve the ſame object through a different medium, or view only the gloomy ſide. He may allow, indeed, that commerce introduces the luxuries and elegancies of life into a country, but contends that theſe luxuries and elegancies often prove the bane of its happineſs, creates artificial wants unknown to our ſoberer forefathers, corrupts the heart and inervates the arm, by miniſtring to wants, at firſt indeed artificial (ſays he) but by habit rendered neceſſary. Corruption of principle ſucceeds, even the ſtern monitor, conſcience grows every day more and more pliant, and the people degenerate into (what I believe the villanous Chief Conſul, at this moment tauntingly calls us) a nation of tricking ſhopkeepers; and as to that univerſal philanthropy ſo much boaſted of, it becomes ſo diluted, ſo inſipid, ſo completely diveſted of all genuine ſpirit, that it is rendered perfectly uſeleſs for any good purpoſe, and is a bad exchange for that 'Amor Patriæ,' that love of country which ought to glow, with undiminiſhed ſpirit, in every Britiſh boſom.

Manufactures have alſo their advocates and their enemies. The former tell you, that wherever they are introduced, they give employment to thouſands and tens of thouſands, who muſt otherwiſe ſtarve or remain a dead weight upon the ſtate; enrich individuals, increaſe the comforts, the commerce, and the importance of the country, which encourages and protects them. This eulogium is allowed by its adverſary, to be in ſome meaſure juſt; but he bids you enquire how many lives are ſacrificed in the attainment of theſe objects; and points to the ſqualed ſickly countenances of young victims, crowded together in large manufactories, and maintains that the contagion is not confined to the vitals of exiſtence, but that it corrupts and ſaps alſo the fountain of morality itſelf.

Leaving however, the *Pro's* and the *Con's* to ſettle theſe important diſputes in which it appears, ſo much may be ſaid on both ſides; let

as view the other object of Britiſh emulation, *Agriculture*, and we ſhall find (to continue the alluſion,) that, like the man of Roſs, it has but one character, never had, and never can make a ſingle enemy. Viewed in every aſpect, and through every medium, Agriculture appears fair and lovely, uniting all the excellencies of the other two, and rejecting all their defects; it is worthy of univerſal encouragement. The employments ſhe furniſhes are the hand-maids to health, competence, purity of heart, and cheerfulneſs of countenance. Her children are the children of nature, and though much of that ſimplicity, which once characteriſed the ſhepherd with the reed and his flock, has long ſince diſappeared, yet ſtill the huſbandman is, comparatively at leaſt, the child of innocence. Surely no man, who exerts even the ſlighteſt degree of obſervation, can behold the various operations of nature through the different ſeaſons of the year, in the field he cultivates, without finding himſelf improved by his reflections, nor without looking up 'through Natures work to Natures God.'—But I muſt apply the check rein in time to my hobby, or having got into this pleaſing level path of panegyrick, he will carry me far from the view and recollection of what was my principal intention when I firſt took up my pen, viz. to give you a ſlight ſketch of the preſent ſtate of Agriculture in the weſtern diſtrict of the county of Norfolk.

I am happy to obſerve, that not one atom of the ſpirit of agriculture ſeems yet to have evaporated, though it certainly ſtruggles at preſent under very heavy preſſures. The principal cauſes of complaint are, the late additional duties upon malt, and ſome of the old corn laws, which reſpects the exports and imports, and againſt the former of which a very ſtrong petition is preparing, to be preſented in the preſent ſeſſion of Parliament from this county. I will give you the routine of crops, and you will then judge whether there does not appear a happy union of ſpirit and judgment in the practice.

The land is generally ſuffered to lie two years in graſs; in the firſt year a ſmall portion is cut for hay, and the remainder of it the firſt, and the whole of it the 2d year, is fed principally with ſheep. After harveſt 10 or 12 loads per acre of good rotten dung, or ½ ton of oil cake (the latter at an expence of at leaſt 4l. per acre), is laid on, and as ſoon as the weather will permit, it is then broken up and ſown with wheat. The following year, the wheat ſtubble is ſown with turnips, which are fed off principally by ſheep; the ſtubble having been firſt again enriched either with dung or oil cake, avoiding a repetition of the ſame manure. Barley with graſs ſeeds ſucceeds, and the land again obtains a reſt of two years. By this mode of culture, heavy crops are produced; though the ſoil is by no means naturally fertile, yet it amply rewards the cultivators for labour and expence beſtowed.—To aver that agriculture had reached in this country its *acme* of perfection, would certainly be aſſerting too much; but ſince, in addition to this almoſt unlimited expenditure, the drill ſyſtem, which allows a liberal uſe of the horſe and hoe, is introduced, and pretty generally practiſed, approaching very near the neatneſs of garden culture, it will not be perhaps too much to affirm, that it is making rapid ſtrides in improvement; yet, as experienced chymiſts may ſtill farther inveſtigate

vestigate the nature of soils and of manures, and discover new and beneficial composts; the skilful mechanic may improve old and invent new machines;—whenever such improvements are discovered, I venture to affirm, that the husbandman of this county will not be the last to encourage and to give them a fair and liberal trial.

Stock in this country, till within a few years, has been but a secondary object with the farmer, and he still depends chiefly on Scotland for his supply of bullocks; but sheep are now become an object of peculiar attention. Mr Coke, member for the county, claims great merit for the example he has set, and the encouragement he has given for the improvement of this animal. He is allowed to be an excellent judge, and, by a judicious selection of breeding stock, has certainly raised flocks of very superior excellency of the kinds he has introduced, viz. South Down and the new Leicester; and at his annual sheep-shearing, which is always attended by several of the Nobility and other amateurs, he generally produces 15 to 20 tups of each kind, to be let for the season, and liberally fixes the highest price at 40 guineas. You will I am persuaded allow that the epithet *liberal* is here very properly applied, when I assure you I have frequently seen more than 30 candidates for several of the best sheep; and that amongst them, not unfrequently, are to be found eminent breeders from the native country of these animals, a proof that they have not degenerated by migration. I am fully persuaded had they been bought by auction instead of being disposed of by lottery, they would frequently many of them have obtained double this price. The old Norfolk, a wild active sheep, though still allowed by the Epicures, to be the best mutton in the kingdom, is fast disappearing from the county, and indeed it certainly is not now (in its present state of almost general enclosure) so well adapted to it, as 50 years ago, when a considerable part consisted of large open barren sheep walks, where the animal had to traverse a great extent of ground, in search of a half belly full. Two favourite toasts with the breeders and graziers of this animal, may perhaps afford you some imperfect idea of what they consider its chief excellencies: '*Small in bone, and large in value.*' '*Symmetry well* '*covered.*'

There is one circumstance respecting the agriculture of this county, which, to my comprehension, indicates a very high and improved state of cultivation, and I own, knowing as I do the soil we have to work upon, it has often afforded me matter of very serious astonishment. The kingdom, I presume you know, is divided into districts for regulating the imports and exports of grain; and though Norfolk is a district by itself, and contains but very little of what can be termed a good natural wheat soil, yet it appears by these returns, that the quantity of wheat it exports exceeds that from any of the other districts, though in several of these are united two or more counties, where the soil appears peculiarly adapted to the growth of that grain. Such is the fact, and a fact which I am persuaded you will allow fully justifies me in re-asserting that the spirit of Agriculture in this country has improved, is improving, and is not likely to be diminished.

as view the other object of British emulation, *Agriculture*, and we shall find (to continue the allusion,) that, like the man of Ross, it has but one character, never had, and never can make a single enemy. Viewed in every aspect, and through every medium, Agriculture appears fair and lovely, uniting all the excellencies of the other two, and rejecting all their defects; it is worthy of universal encouragement. The employments she furnishes are the hand-maids to health, competence, purity of heart, and cheerfulness of countenance. Her children are the children of nature, and though much of that simplicity, which once characterised the shepherd with the reed and his flock, has long since disappeared, yet still the husbandman is, comparatively at least, the child of innocence. Surely no man, who exerts even the slightest degree of observation, can behold the various operations of nature through the different seasons of the year, in the field he cultivates, without finding himself improved by his reflections, nor without looking up 'through Natures work to Natures God.'—But I must apply the check rein in time to my hobby, or having got into this pleasing level path of panegyrick, he will carry me far from the view and recollection of what was my principal intention when I first took up my pen, viz. to give you a slight sketch of the present state of Agriculture in the western district of the county of Norfolk.

I am happy to observe, that not one atom of the spirit of agriculture seems yet to have evaporated, though it certainly struggles at present under very heavy pressures. The principal causes of complaint are, the late additional duties upon malt, and some of the old corn laws, which respects the exports and imports, and against the former of which a very strong petition is preparing, to be presented in the present session of Parliament from this county. I will give you the routine of crops, and you will then judge whether there does not appear a happy union of spirit and judgment in the practice.

The land is generally suffered to lie two years in grass; in the first year a small portion is cut for hay, and the remainder of it the first, and the whole of it the 2d year, is fed principally with sheep. After harvest 10 or 12 loads per acre of good rotten dung, or ½ ton of oil cake (the latter at an expence of at least 4l. per acre), is laid on, and as soon as the weather will permit, it is then broken up and sown with wheat. The following year, the wheat stubble is sown with turnips, which are fed off principally by sheep; the stubble having been first again enriched either with dung or oil cake, avoiding a repetition of the same manure. Barley with grass seeds succeeds, and the land again obtains a rest of two years. By this mode of culture, heavy crops are produced; though the soil is by no means naturally fertile, yet it amply rewards the cultivators for labour and expence bestowed.—To aver that agriculture had reached in this country its *acme* of perfection, would certainly be asserting too much; but since, in addition to this almost unlimited expenditure, the drill system, which allows a liberal use of the horse and hoe, is introduced, and pretty generally practised, approaching very near the neatness of garden culture, it will not be perhaps too much to affirm, that it is making rapid strides in improvement; yet, as experienced chymists may still farther investigate

veſtigate the nature of ſoils and of manures, and diſcover new and beneficial comports; the ſkilful mechanic may improve old and invent new machines;—whenever ſuch improvements are diſcovered, I venture to affirm, that the huſbandman of this county will not be the laſt to encourage and to give them a fair and liberal trial.

Stock in this country, till within a few years, has been but a ſecondary object with the farmer, and he ſtill depends chiefly on Scotland for his ſupply of bullocks; but ſheep are now become an object of peculiar attention. Mr Coke, member for the county, claims great merit for the example he has ſet, and the encouragement he has given for the improvement of this animal. He is allowed to be an excellent judge, and, by a judicious ſelection of breeding ſtock, has certainly raiſed flocks of very ſuperior excellency of the kinds he has introduced, viz. South Down and the new Leiceſter; and at his annual ſheep-ſhearing, which is always attended by ſeveral of the Nobility and other amateurs, he generally produces 15 to 20 tups of each kind, to be let for the ſeaſon, and liberally fixes the higheſt price at 40 guineas. You will I am perſuaded allow that the epithet *liberal* is here very properly applied, when I aſſure you I have frequently ſeen more than 30 candidates for ſeveral of the beſt ſheep; and that amongſt them, not unfrequently, are to be found eminent breeders from the native country of theſe animals, a proof that they have not degenerated by migration. I am fully perſuaded had they been bought by auction inſtead of being diſpoſed of by lottery, they would frequently many of them have obtained double this price. The old Norfolk, a wild active ſheep, though ſtill allowed by the Epicures, to be the beſt mutton in the kingdom, is faſt diſappearing from the county, and indeed it certainly is not now (in its preſent ſtate of almoſt general encloſure) ſo well adapted to it, as 50 years ago, when a conſiderable part conſiſted of large open barren ſheep walks, where the animal had to traverſe a great extent of ground, in ſearch of a half belly full. Two favourite toaſts with the breeders and graziers of this animal, may perhaps afford you ſome imperfect idea of what they conſider its chief excellencies: '*Small in bone, and large in value.*' '*Symmetry well* '*covered.*'

There is one circumſtance reſpecting the agriculture of this county, which, to my comprehenſion, indicates a very high and improved ſtate of cultivation, and I own, knowing as I do the ſoil we have to work upon, it has often afforded me matter of very ſerious aſtoniſhment. The kingdom, I preſume you know, is divided into diſtricts for regulating the imports and exports of grain; and though Norfolk is a diſtrict by itſelf, and contains but very little of what can be termed a good natural wheat ſoil, yet it appears by theſe returns, that the quantity of wheat it exports exceeds that from any of the other diſtricts, though in ſeveral of theſe are united two or more counties, where the ſoil appears peculiarly adapted to the growth of that grain. Such is the fact, and a fact which I am perſuaded you will allow fully juſtifies me in re-aſſerting that the ſpirit of Agriculture in this country has improved, is improving, and is not likely to be diminiſhed.

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Acknowledgements to Readers and Correspondents.

Sir JOHN SINCLAIR, Bart. will kindly excuse us for delaying the *Account of Improvements in Caithness*, during the year 1803, because it was altogether out of our power to find room for such an extensive paper in the confined limits of the *Supplement*. We feel deep regret at the disappointment, but shall bring forward the article as the first paper of our succeeding number. Several other correspondents who obligingly furnished similar communications, will please accept of the like apology for their non appearance.

As the portrait of Mr COCKBURN could not be got ready in time, we are necessitated to postpone the *Memoirs* of that gentleman to an after occasion.

The judicious *Observations* of CELERIUS *on the Obstacles to Improvement*, shall appear in the next number. We are truly sorry that they have been so long withheld.

A letter from Dumfries, on the subject of *Drainage*, will be presented with all convenient speed. The great arrear we are in to various correspondents prevents us however from fixing a time.

Wishing our numerous Readers and Correspondents many happy returns of the season, and trusting to meet with a continuance of their favour and countenance in the following year, we beg leave to offer our sincere and grateful thanks for the liberal and unprecedented support received in the course of this volume. While these things impress our mind with gratitude, they stimulate our zeal to persevere in the cause we have undertaken; and if the aid of our friends does not slacken we ardently hope, that the FARMER'S MAGAZINE will continue to maintain a rank not inferior to that of any other agricultural publication hitherto attempted in Great Britain. Errors in execution may be found, (and the number of them we lament) but such, under the circumstances of the case, are almost unavoidable: It is our duty, however, to use every means of rendering the work as perfect as possible; therefore no endeavour shall be spared on our part, which can contribute to promote that object, and thereby add to the information and amusement of its readers.

No. XVII. will be published on Monday, Feb. 6. 1804.

Errata in last Number.

Page 386, 18 lines from top, for *former surface*, read *firmer surface*.
Page 410, 20 lines from top, for *folium perenne*, read *Lolium perenne*.

Errata in the Supplement.

Page 509, 7 lines from top, for *lowest*, read *highest*.
Page 510, fifteen lines from bottom, for *pastare*, read *pasture*.
Page 513, twenty lines from bottom, for *to a pay*, read *pay*.

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